MOTOR AGE

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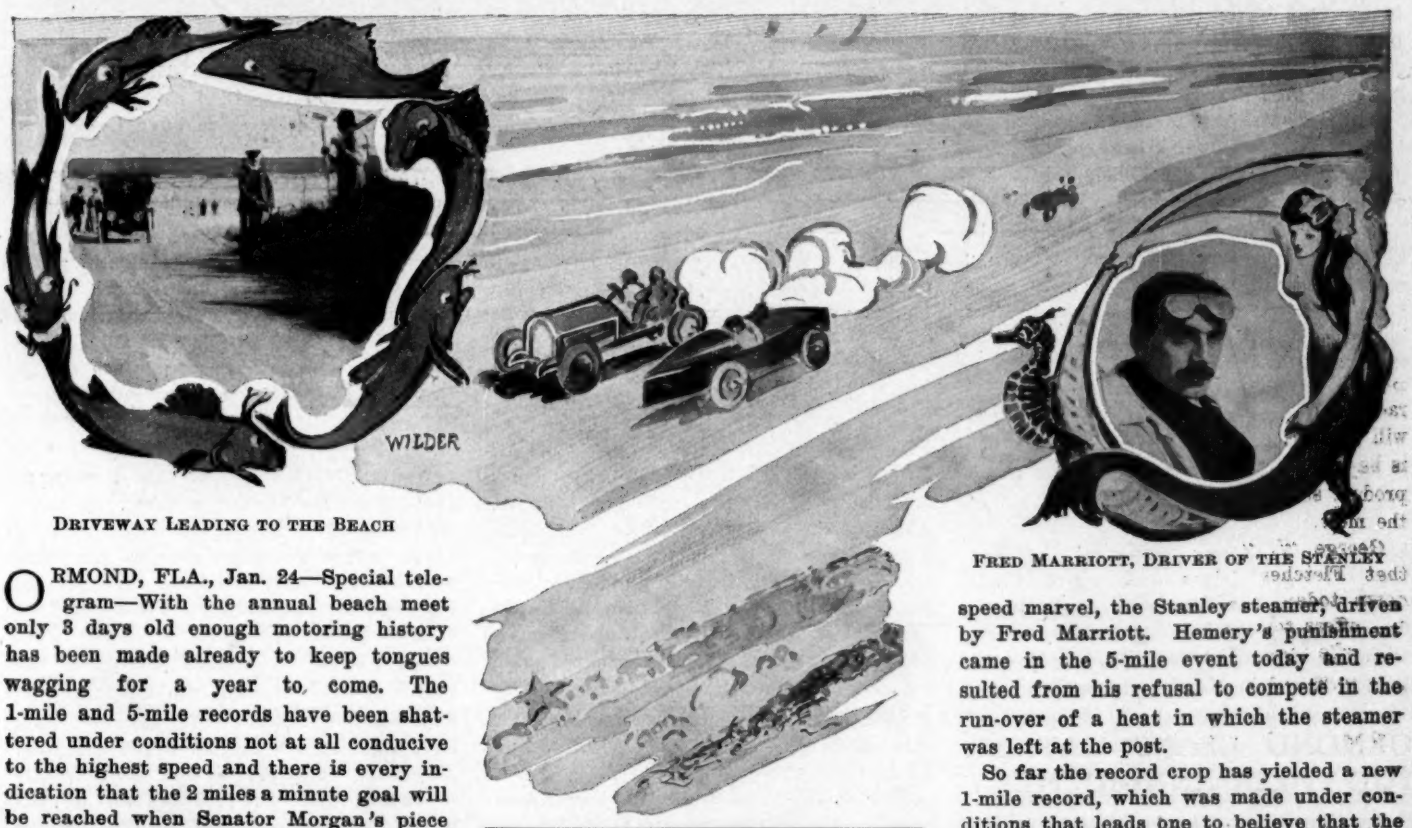
NEAR THE HALF-MINUTE MARK AT ORMOND



DRIVEWAY LEADING TO THE BEACH

FRED MARRIOTT, DRIVER OF THE STANLEY

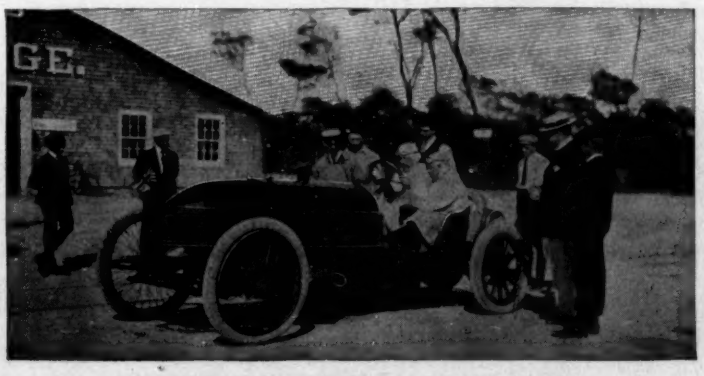
ORMOND, FLA., Jan. 24—Special telegram—With the annual beach meet only 3 days old enough motoring history has been made already to keep tongues wagging for a year to come. The 1-mile and 5-mile records have been shattered under conditions not at all conducive to the highest speed and there is every indication that the 2 miles a minute goal will be reached when Senator Morgan's piece de resistance is put on. To top all this excitement, Hemery, successor to the great Thery as champion road driver of the world through his success in the Vanderbilt cup race, has been given a taste of American discipline which will do his peppery temper good. He had a close call yesterday from being set down, and this was not enough for him, for he broke loose again today and he got what was coming to him, and he got it good and plenty, at that—nothing less than disqualification for the entire meeting for refusing to obey the orders of Referee Morrell, who displayed commendable nerve by doing his duty, even though it cost the meet a man who promised to be the only one of all the many stars here who could successfully compete with that speed marvel, the Stanley steamer, driven by Fred Marriott. Hemery's punishment came in the 5-mile event today and resulted from his refusal to compete in the run-over of a heat in which the steamer was left at the post.

So far the record crop has yielded a new 1-mile record, which was made under conditions that leads one to believe that the mark would have been nearer 27 seconds than the 31⅘ if a flying instead of a rolling start had been used and the weather conditions been better.

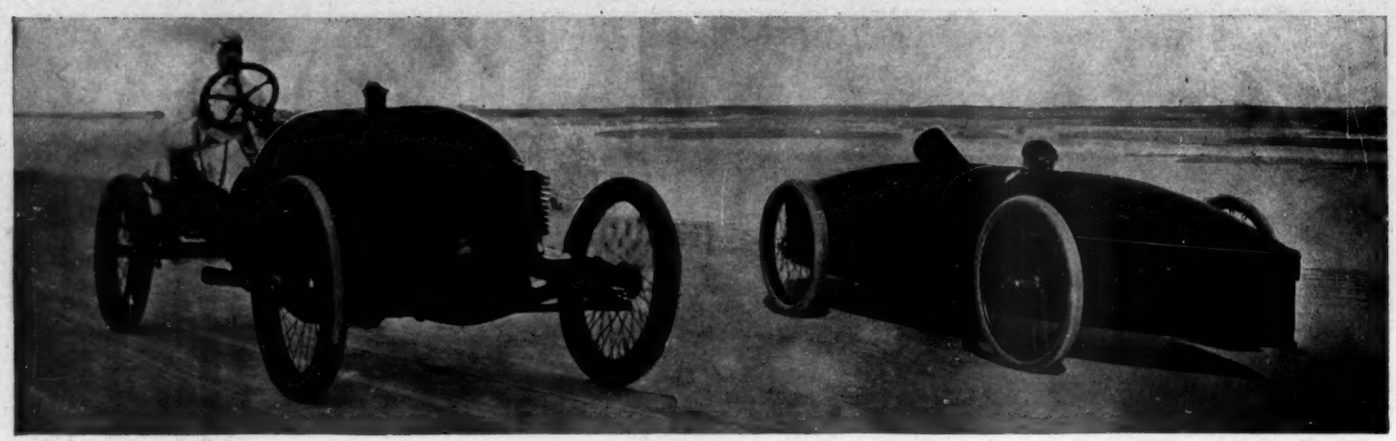
It was a dark horse, too—one that came out of the same stable that produced Louis Ross last year. Fred Marriott, driving a Stanley steamer, is the individual who tonight wears the laurel wreath through the wonderful time made yesterday, when he twice beat the 32⅘ seconds mile of Bowden, which, however, had not been accepted because his car was overweight. To add to this he today smashed the 5-mile mark made only a short time before by Lancia in his Fiat. The Italian did 2 minutes 54⅘ seconds and Marriott reduced this to 2 minutes 47 seconds. It is true he was later beaten

MARRIOTT'S MILE MEANS

166 Feet in 1 Second
100 Yards in 1 4-5 Seconds
1 Mile 1560 Yards in 1 Minute
113 Miles 352 Yards in 1 Hour



CLIFFORD EARP IN SIX-CYLINDER NAPIER CAR



EARP ON THE NAPIER — TRY-OUT ON THE BEACH — MARRIOTT IN THE STANLEY

in the final by both Lancia and Fletcher, but Stanley asesrts the car cracked a casing in the trial heat, causing it to backfire. At that the steamer made a gallant fight for it, Marriott trying to coast in the last 2 miles with the headway he had gained. He nearly succeeded, only being collared in the last 200 yards.

It is to be hoped that the fates will be kind and save some of the cars for the 2 miles a minute race. With Hennery gone and Fletcher's car wrecked by an accident in the middleweight championship, two of the possible stars are gone. It may be that Basil will guide the 200-horsepower Darracq in Hemery's place, in which event it will not be quite so bad. Tonight everyone is happy, for it seems as if Ormond would produce startling records before the end of the meet.

George W. Young, owner of the Fiat that Fletcher drives and which broke down today, has been cabling Paris all day offers for the 200-horsepower Darracq with the idea of having Fletcher drive it tomorrow and in the Cuban races.

ORMOND CLANS GATHER FOR THEIR ANNUAL MEET

Ormond, Fla., Jan. 22—Florida is extending a warm welcome to the incoming circuit chasers, greeting them with sunny skies, sparkling ocean, breezes balmy, but bracing, and a beach in better form than ever for the speed of the motoring kings; for fair Florida is at her fairest today, as she has been for a week, and this time the scribes who have handed out tales of its tropical ecstasies are made no liars by that old knocker of a weather clerk. Those who were frozen and wind-buffeted last year and braved another attempt are shaking hands over their good play and pitying those whose enthusiasm for coming again was blighted by last year's frost.

Clifford Earp and Vincenzo Lancia, the invading European stars already here, are wildly enthusiastic over the beach.

"Wait until next year," said Lancia, whom your correspondent has been torturing with execrable French, in excellent English at the weighing-in stand this morning, "and I will bring over a car fit to race on this magnificent course. No mere road machine like my Fiat is worthy to make the time possible on this wonderful beach. When I tell my racing confreres in Europe what a course this really is you will see all the makers rush cars over here for records."

"It is a wonderful beach," said Clifford Earp. "We have a 9-mile beach stretch on the other side, on which speeding can be done; but it does not compare with this smooth hard surface."

There will be a round dozen of top-notch flyers to go against one another in the races. Up to 1 o'clock today the following had weighed in: Fletcher, Fiat, 2,200; Lancia, Fiat, 2,199; Cedrino, Fiat, 2,195; F. E. Stanley, Stanley steamer, 2,195; J. E. Harding, Dinsmore Mercedes, 2,195; Walter Christie, 110-horsepower four-cylinder Christie, 2,190; and Dan Wurgis, Reo Bird, 1,395. Earp's Napier tipped the beam at 2,216 with two tanks of gasoline aboard, one of which is to be removed. In fact, the above cars are all well under weight, having been weighed for the most part with some gasoline and water and easily removable fittings aboard.

The A. G. Vanderbilt 250-horsepower Special, the 105-horsepower Ford, the 80-horsepower Napier and the Stanley stock car are all here. The Darracqs and the Wayne middle-weight are hourly expected. The Vanderbilt car has been out a couple of times, but clutch and imperfections incident to its newness and hasty preparation have got to be remedied by Sartori.

R. E. Olds is in a stew over the non-arrival of a freight car with the racing wheels of the Reo Bird shipped 2 weeks ago. The practice spins have been made with stock wheels.

Walter Christie's new car has attracted much attention. Its cylinders are exposed and placed directly above the front axle. They are placed in a four-in-hand group across the car. They have steel forged waterjackets. In fact, the engine is both water and air-cooled. Louis Chevrolet is driving it and, though strange at the car, seems to be getting a whirlwind of speed out of it.

The gold crown and Dewar trophy winner seems more than likely, and easily at that, to be the Stanley steamer. It has a cigar-shaped body painted red with a black stripe running around the perpendicular board, where the curve of the top begins. The body has the appearance of a rather stumpy, inverted racing shell.

The Napier is the most touted of the gasoline cars. Having the advantage of MacDonald's experience, the Napier people have rigged their car for beach speeding. The Fiats, which are out and out road cars so far as their equipment goes, are expected to show around 35 seconds for the mile, but that is deemed far too slow to have even a look in at this beach racing game. How fast the new Christie and the Ford six-cylinder can go remains to be seen. Both have records close to 38 seconds in the Jersey coast beaches. J. R.

FLETCHER DRIVING THE FIAT ON THE BOARD RUNWAY

Harding has No. 13X Mercedes of the Vanderbilt race here, but Vanderbilt cup cracks are mere roadsters at this beach racing game. It looks, in a word, as though the Napier and 200-horsepower Darracq of the European bunch and the Stanley would have the sprinting to themselves, with a bare chance that Lancia has been bearing Fiat stock as a hedge and that Christie and Ford may develop as surprises. A 30⅗ seconds mile for the Stanley and a 31 for the Napier are fairly well authenticated practice times, so far as snap watch timing at the drop of a flag can give a line. The C. A. Coey Thomas Flyer has failed to make good its entry.

The racing to-morrow will all be at a mile and consist of the trial heats of the Dewar cup and the heavyweight gasoline championship, and the middle-weight gasoline and the steam championships.

MARRIOTT DROPS MILE RECORD TO 31 4-5 SECONDS

Ormond, Fla., Jan. 23—Special telegram—As was predicted, and as usual, the Florida beach meet's inaugural for its fourth season was marked by record breaking. Twice were the world's best figures for the mile beaten, first in the first trial heat for the Dewar cup and again in the contest for the steam championship. In both instances Fred H. Marriott, driving F. E. Stanley's steamer, did the trick. The first lowering was to 32⅕ seconds, which was reduced in the closing event of the day to 31⅘ seconds. In the other championship decided today, the mile for heavy gasoline cars, the finish was Lancia, Fletcher, Cedrino—a one-two-three victory for the Fiat bunch, Earp having been put out of the running by Lancia in the second heat in 42 seconds, Earp scoring 43⅗. Lancia's win was a splendid performance, for his time was 37 seconds, which is world's competition record for gasoline cars and far better than anything ever done on the beach in a race. All these figures were scored from a brisk rolling start from a point just south of the Clarendon pier to a half-mile from the start in front of the clubhouse at Daytona.

A sensational incident of the day was the abrupt withdrawal by Hemery of the entire quartet of Darracq cars. The row was over the weighing in. The two big cars and the middleweight racer had all come well within the limit, but the light car tipped the beam at 895 pounds, 44 pounds above the lightweight limit. The car was accordingly declared ineligible in its class. Hemery insisted that it be permitted to compete, whereupon Hemery withdrew in a huff and towed the entire string back to Ormond. It was a bit of baby play which was roundly condemned. Should the A. A. A. decide to punish Hemery by suspension and ask that it be confirmed by the A. C. A., the foreign clubs would have to make it hold in Europe also. Chairman Morrell, however, will doubtless see Hemery and the Darracq representative and endeavor to induce Hemery to be sensible and compete in later events.

George W. Cook, of the American Darracq Automobile Co., which made the entry, is indignant at Hemery's action and says the Darracqs will be started in subsequent races whether Hemery likes it or drives them or not. Hemery's recent row with the Italian club and his suspension by the French club is well remembered. Chairman Morrell and the racing officials will meet tonight to consider the matter. A compromise is expected.

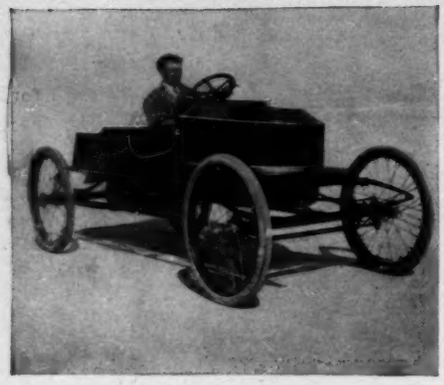
CHARACTERISTIC BEACH SCENE—SHY BUT INTERESTED

Driving rain and some little fog made the greeting that awaited the racegoers when they awoke this morning, and a postponement for a start-off was feared. Just the same, though, the enthusiastic circuit chasers piled into automobiles after breakfast and hurried away down the beach to Daytona. The Oldsmobile bus bore a score or more of newspaper men. Arriving at Daytona, they found the clubhouse decorated in national colors, its verandas and rooms thronged and its pier crowded with early comers. Soon a line of cars filled with women and other onlookers stretched up and down the beach a furlong either way. Florida crackers had come in from the back country and darkies and pickaninnies swarmed around. There were a couple of thousand of white backs besides, perched on the sand dunes or lining the wire barrier.

There was disappointment but not a bit of bad humor of any kind, for the northerners, for the most part, just escaped from the fatigues of the shows, were glad to be having a rest of any kind. Though it rained it was not cold. The race committee, after an hour's wait, very properly decided to start the races. The sand was wet but firm and the rain was not so severe as to impede the comfort or speed of the contestants very much. There were to be no record trials, only races, wherein the conditions were as fair for one as the other, so what was the difference?

The Dewar cup was first on the card for decision. It had for starters F. H. Marriott in the 50-horsepower Stanley steamer; W. Clifford Earp in S. F. Edge's 80-horsepower six-cylinder Napier, and H. W. Fletcher in George W. Young's 110-horsepower Fiat. After two false starts the cars got away on even terms, with Fletcher near the ocean and Marriott on the inside. In a jiffy the steamer jumped away from the gas cars and began its runaway race. The expected was happening and Marriott won by a quarter of a mile or more in 32⅕ seconds. Earp was second in 40 seconds and Fletcher a fairly close third. MacDonald's 34⅖ seconds, made last year in the Napier, and even Bowden's 32⅖ seconds, scored in an overweight car, were made memories of the past. What would the Stanley do with a flying instead of this rolling start? Lancia and Cedrino made a pretty race in the second heat, the former winning in 37⅗, a new competition record, with Cedrino close up in 38⅕ seconds. Under the rules the winners and the fastest seconds were to go into the final. This brought Marriott, Lancia and Cedrino to the tape. After two false starts Marriott and Cedrino got away without Lancia. Of course, the steamer won. This time its time was 33 flat, with Cedrino's time 38. Joe Downey, in J. R. Harding's 90-horsepower Mercedes, was a bad third.

The mile heavyweight championship followed. Cedrino beat Fletcher in the first heat, 39⅗ to 39⅘, while Lancia prevailed over Earp in the second 42 to 43⅗. This brought the three Fiats into the final, which was a magnificent struggle, one lapping the other for over half the distance. Lancia won in 37, a new gasoline competition record, with Fletcher second in 37¼, and Cedrino 100 feet back. The Napier had trouble with its clutch today.



DAN WURGIS IN REO BIRD

The second record-breaking feat of the Stanley steamer came in the race for the mile championship, in which Frank Durbin, in a stock Stanley runabout, and Bert Holland, in a Stanley touring car, also started. The racer gave them a big start to the line and passed them before a furlong had been covered. It was practically a record try of the steamer and the time was eagerly awaited; it was a surprise that it was only 31⅘ seconds, but it was forgotten that for the steamer the course was 3 seconds slow at least. It is now guessed that 27 will prove about the Stanley's speed capacity.

This ended the day's racing, though a false start run in the middleweight class, in which Cedrino in the Fiat, Jr., beat Dan Wurgis in the Reo Bird in a fairly close race in 50 seconds, had been contested and called off by reason of an unequal start. Though Louis Chevrolet made a run up the beach with the Christie car in good style, it did not show up for either race, nor did Henry Ford's six-cylinder either, though it was passed on the beach by the newspaper men on their way back to Ormond. Fred H. Marriott, who drove the Stanley record-breaker, has been with Mr. Stanley for 7 years and has driven his cars in numerous track contests. The Stanley is equipped with a simple single engine—not compound, mind you—with a 4½ by 6½-inch cylinder and a boiler 13 inches in diameter. It has 1,476 ½-inch tubes of 21 gauge, with a heating surface of 285 square feet. It will develop, says Mr. Stanley, 50 horsepower continuously for 10 miles and 150 horsepower in sprints of from 1 to 10 miles. The Christie engine has mechanical inlet and exhaust valves, the former surrounding the latter and placed directly in the head. The four cylinders are staggered to get the required diameter within the tread. The radiator is in the rear and the waterjackets are plated by electrolysis. The big Darracq made a great impression on the racing car critics. It had eight cylinders cast in pairs and set in V form, with the apex of the V pointing to the ground. The car consists of one engine and two skeleton seats on a frame without sides. The radiator is small and pointed at an acute angle.

There is a big, jolly crowd of racegoers here. Though the hotel is not crowded it is full. The Wayne party is putting up in a private car on a siding near the station. It did not get in until near midnight yesterday, as the railroad officials refused to attach it at St. Augustine to a train of fifteen cars bearing the racegoers. All the late comers were delayed and had experiences to tell. Jess Draper nearly died of heart disease and poverty from having a four aces hand rung in on him against a straight flush held by Spooner. The game was put up on Draper by Kull during his temporary absence from the table. The Minneapolis club special is expected tomorrow night with sixty in number. Thursday will be Minneapolis day and the 100-mile race for the Minneapolis cup will be the feature of the card. Both the eastern and western trade is well represented among the circuit chasers.

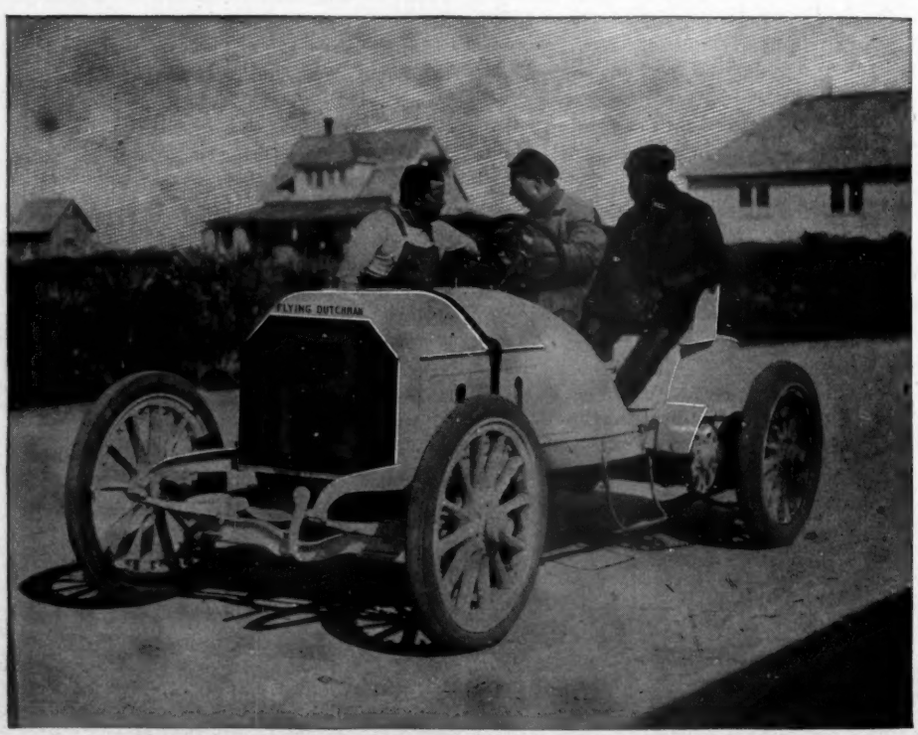
SECOND DAY SEES 5-MILE RECORD BROKEN TWICE

Ormond, Fla., Jan. 24—Special telegram—Successive world's records at 5 miles by Lancia and Marriott, and another row by Hemery, resulting in his disqualification from participation in any further events at the meet, marked the second day's racing, which was run in a cold but favoring northeast wind. The record-breaking was done in the last and second heats of the 5-mile open championship, Lancia and the Fiat cutting 3:17 made by Arthur MacDonald last year to 2:54⅗ and Marriott with his steamer reducing the new Lancia figures to 2:47.

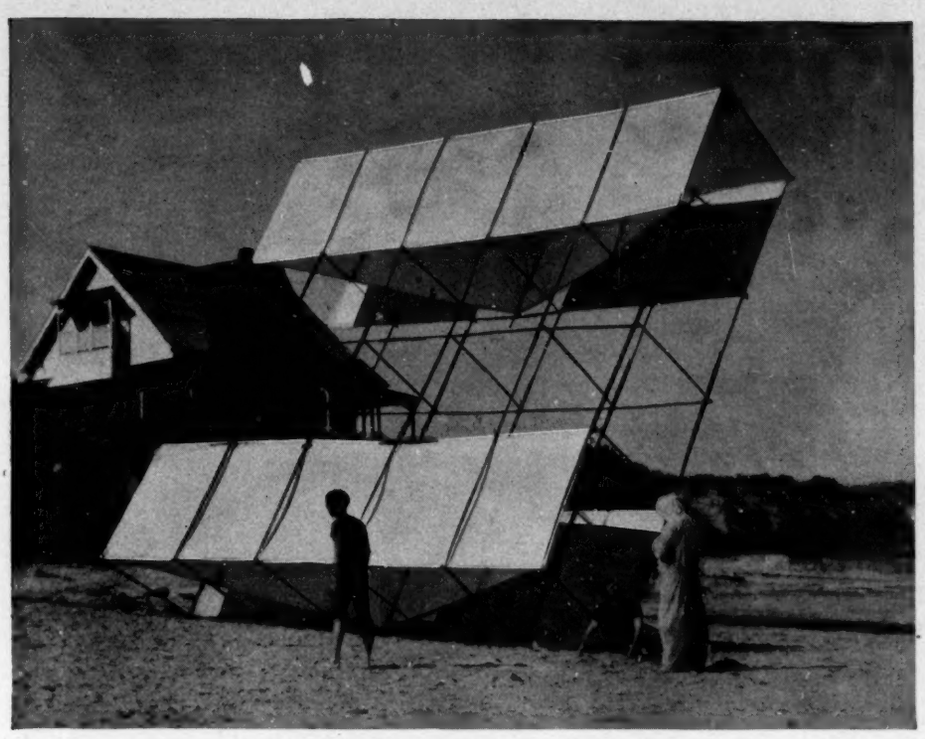
At a meeting of Chairman Morrell, Henry L. Bowden and A. L. Riker, of the racing board, with the meet officials last night, George Cook, of the American Darracq Co., being present, the Hemery imbroglio of the day before was amicably adjusted. It seems the original framers of the A. A. A. weight classification had erred in setting the lightweight limit at 881 pounds, when it should have been 886.4 pounds. The latter figures would have cut down the lightweight Darracq's overweight considerably and that started Hemery's hot head to heating. This morning the Darracq lightweight weighed in all right.

Today's row came about through what was officially declared a false start in the second heat of the 5-mile open championship, which had Hemery, Fletcher and Marriott as contenders. Fletcher got away in the lead, with Hemery 50 yards back and the steamer practically left at the post. Hemery caught Fletcher after a brief struggle and made a runaway of the heat, winning by nearly half a mile. It having been signaled a false start, Hemery was ordered to return to the starting line for another start. The hot-headed Frenchman flew in the air at once, declared he was being robbed and refused to return to the start. Chairman Morrell and Henry Bowden argued with him and then Morrell promptly disqualified him from further competition and placed him under suspension. Hemery started to return with his car up the beach, but the racing board chairman said that the machine must remain where it was until the races were over and placed a deputy sheriff in charge to see that Hemery did nothing on the course with it and so endanger others.

An hour later Hemery attempted to take his car up the beach, deputy or no deputy. Morrell promptly added two more deputies to the car's guard and the car remained where it was until the races were over when



HARDING'S FLYING DUTCHMAN MERCEDES—LANCIA ON FOOT



HAMILTON'S AEROPLANE, WHICH FELL 300 FEET

Hemery took it flying over the beach. An unofficial watch in the timing stand is said to have caught Hemery's time as 2:34⅘, but this figure is neither official nor altogether authentic. Cables had been passing all the morning between Cook, Batchelder, Hemery and the Darracq people in Paris, who wished to have yesterday's disqualification of Hemery removed. Fresh cables told of today's trouble. Cook cabled asking that the Darracq car be placed absolutely in his control. If this is done he is figuring on Basil, who piloted Bowden's Mercedes when it made the kilometer record on the beach 2 years ago and was the Mercedes helmsman when it made track records, to drive it.

There is the utmost indignation against Hemery and sympathy for the Darracq people that their efforts to produce a world-beating car has been made futile by so irresponsible a driver and representative as Hemery. The severest punishment of Hemery, and a barring of him from all further contests on this side of the water is demanded.

Today broke rainless but cloudy. A cold north wind blew down the beach at 20 miles an hour. There was, however, no diminution of the racing enthusiasm of the crowd, who saw in the high wind the hopes of another slaughter of records. A long string of automobiles was drawn up on the beach in front of the club house at Daytona, where the finish line was drawn. The races being run from Ormond south, fully 3,000 people were on the track, which is a big crowd for the out-of-the-way spot.

In the first heat of the 5-mile open championship Lancia made his record run in 2 minutes 54⅗ seconds. Earp finished far behind, having practically quit in the home stretch. Earp claims he was interfered with by the Christie car at the start and that the heat should never have been allowed to stand. The second resulted in the false start and the Hemery row already recorded. Hemery finished over half a mile ahead of Fletcher.

The final brought to the post Fletcher, Lancia and Marriott. Here came the unexpected overthrow of the hitherto easy-winning steamer. Marriott jumped away in the lead, had it all his own way to the last bridge when the two Fiats got within a furlong of him. The crowds at the finish could see that a terrific struggle was in progress and that the gasoline flyers were fast overhauling the steamer. Two hundred yards from the tape Lancia got by and then Fletcher passed him. The times were: Lancia, 3 minutes 1⅕ seconds; Fletcher, 3 minutes 2 seconds; Marriott, 3 minutes 3 seconds.

Stanley says the car cracked a casing in the trial heat and back fired. He did not want to start the car in the final heat, but was told that he had to. At 3 miles he says Marriott shut off his fire and tried to run in on his steam but it did not carry the car far enough to win.

The middle-weight championship race had Cedrino in the Fiat, Jr., and Deacon Holmes in the 40-horsepower Wayne for starters. Cedrino won at his pleasure in 3 minutes 3⅗ seconds and Holmes crawled in in 5 minutes 46 seconds, having had trouble with his clutch. Fletcher, Earp, Lancia and Joe Downey, the last named piloting J. R. Harding's Mercedes 90, which was S. B. Stevens' representative in the Vanderbilt race, were started together in the 5-mile heavy-weight gasoline championship. This time the Napier ran up to form and won easily in 2 minutes 56 seconds, Downey being second in 3 minutes 29⅕ seconds. The latter was not bad going under the standards of power and time. Lancia and Fletcher stopped between two bridges, having had trouble with their cars. They were still tinkering at them when the crowd passed them on the way home from the races, which ended with the heavy-weight race. It was subsequently learned that Fletcher's car was almost a hopeless wreck. When he had gone about a mile in the race a nut broke, causing him to stop. When he started toward home two cylinders blew out and general devastation followed, much to Fletcher's dismay.

The crankcase was smashed and the piston broke and the connecting rod bent. Repairs are impossible, so he can take no further part in the tournament. Lancia stopped because of more engine trouble. Fletcher says that he broke his Fiat in beating the steamer. He struck a bad bump which must have disarranged the machinery.

Soon after the races ended the rain came and is falling steadily tonight, giving small hope of clear weather tomorrow.

Henry Ford has been working like a beaver to get his six-cylinder car in shape for racing. He has put in an automatic carbureter in place of the mechanical one. The rear axle, which was bent in transit, has been straightened and the car will be ready to start tomorrow.

Walter Christie, while speeding his car on the beach today, had a narrow escape from a serious accident. The right front wheel came off and ran into the ocean, the car continuing on the axle and being brought to a standstill without upsetting. The wheel has been replaced.

Sartori is laboring with the Vanderbilt giant. He has made a new clutch and thinks he can so fix the water circulation that it will carry him 10 or 15 miles. No one else thinks so, and the car is generally regarded as a failure. Everybody is in good humor, though there are many cracks among the new comers at Florida's balmy weather, which seems a joke.

THE FLYING DUTCHMAN, FLETCHER UP, TRYING THE BEACH COURSE

MOTOR AGE

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BEGINNING BUILDING AT THE WRONG END

RECENT events in automobiling affairs have more than ever illustrated the need for some action on the part o- motoring governing bodies, both local and national, in the matter of securing some definite and consistent law which shall apply to the motor car not only in one section or one state or locality, but in all parts of the country, even if such regulation shall not be all that might be desired.

The present inconsistent city, county and state regulations ought to cause motorists to secure legislation that will do away with the hundred and one petty speed and license laws now existing and that not only will continue to exist but will grow to be more nauseating than they are at present, if that is among the possibilities.

Pennsylvania and New Jersey probably are supreme in the matter of bleeding motorists—because these states need the money and because nobody seems to take enough interest in the welfare of the fraternity to make any effort to counteract the impositions heaped upon all motorists. It was only recently that a Philadelphia motorist having a Pennsylvania license on his own car was arrested and fined $25 for not having a license on the car he was towing. This all occurred in Jersey because of a senseless regulation.

The automobile governing bodies are busily engaged at present making road maps, running races, planning tours, etc., and, incidentally, forgetting as fast as they can that the groundwork for the benefit of automobiling and automobilists is to secure rational and consistent laws governing not only the matter of speed but all other matters wherein automobile and automobilists are concerned. Motor Age does not include in this list the matter of license—it believes any law which is passed with a view of licensing an automobilist is a rank piece of discrimination and not worth the paper upon which it is written because of its unconstitutional nature.

Ordinarily the builder begins the erection of a house with the laying of the foundation, putting on the trimmings after the substantial part of the structure has been completed. Frills should follow, not lead—the foundation should be laid and allowed to become settled before any other part of the structure is commenced if a substantial house is to result.

There are enough motorists to be so divided as to carry along the work in a number of lines, but it has always been shown that it remains for a handful of enthusiasts to do all the work, and this handful cannot carry on one big undertaking and a dozen side lines with it.

MOTOR AGE realizes that to obtain results unanimity must control. In the automobile field are six controlling bodies—the American Motor League, Automobile Club of America, American Automobile Association, Association of Licensed Automobile Manufacturers, American Motor Car Manufacturers' Association, and the Parts and Accessories Manufacturers. To this list can be added the names of eighteen or more automobile clubs, resident in such cities as New York, Chicago, Boston, Philadelphia, Washington, Buffalo, Cleveland, Detroit, Indianapolis, St. Louis and San Francisco, making in all twenty-four separate controlling automobile associations. Bring representatives of these twenty-four organizations together—thus far they have never met in convocation for the discussing of matters paramount to automobiling. From each of the six national bodies take five representatives, from each club select four, and the representation thus gained will total 102, a body not unwieldy, one absolutely representative of the motoring interests from the Atlantic to the Pacific and from the gulf to the great lakes, and an assembly capable of bringing to the ears of the legislators at Washington, in every state capital and in every city, town and county in the land the rational rights of motorists. Chicago, New York, Buffalo, Cleveland, Detroit or Indianapolis is a suitable center for such meeting. The time for convening cannot be too soon. Delegates from the different bodies referred to could be selected by popular vote or named by the presidents of the organizations represented.

As to the results that might be accomplished by such a convention of motorists, nothing need be said. Earnest, representative conventions never have assembled without pronounced results, and while the A. A. A. and the A. C. A., or the A. M. L. and the individual automobile clubs are harping in their own little corners and accomplishing nothing, a combination of all would speak with a voice that would be heard and heeded.

MOTOR AGE is simply pleading for some sort of amalgamation of all interested bodies, for some interest on the part of the individual, for some action on the part of all, that automobiling may be enjoyed as it might be enjoyed without the petty annoyances that beset the average tourist in most parts of the country nowadays.

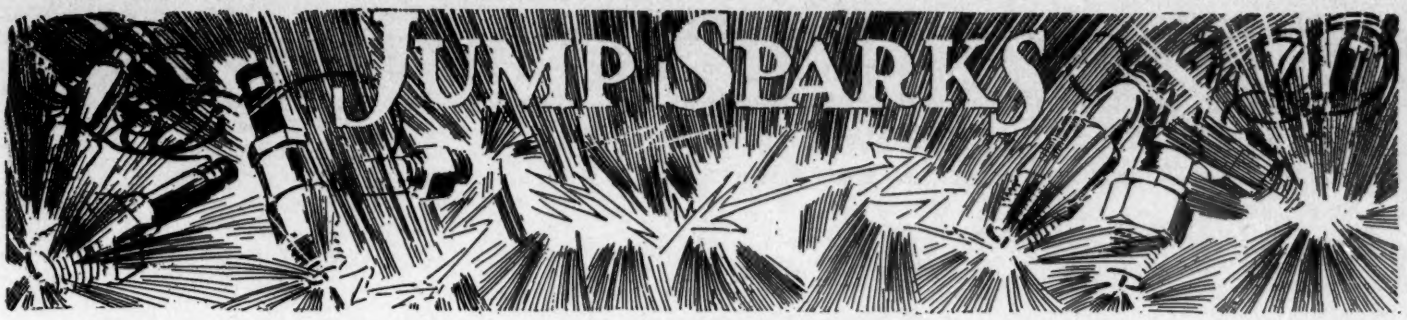
THE GREAT WEST NOW AWAITING ITS TURN

THE east has had its peep at all that is great and all that is new in all lines that in any manner pertain to automobiles or automobiling—now the great west awaits its turn to gaze and wonder and, incidentally, to buy and to buy liberally. That portion of the country east of Detroit and Toledo will see a dozen or more shows that, while they will be termed local, will be on such a grand scale as to eclipse even the national shows of previous years. The great west will have to go to Chicago to see all the cars of the two worlds housed in one exhibition. The west is ready to plank down its money to buy automobiles and all that goes with them. It has the money, too, for the west has never seen such prosperity as it is now enjoying, and while it proposes to keep some money for the rainy day and for the improvement of its great farms and ranges it proposes to take a little of life's enjoyments and knows of nothing better than the automobile for this purpose. At the same time it realizes that while primarily bought for pleasure the automobile can be turned into a multiplicity of uses that will be of essential benefit other than pleasure giving alone.

The indications are that it will not be long before the great west will supply the market for much of the automobile trade that is to come to American makers in the not distant future. The east will have its fill of factories and the west will be looked to for a place wherein to sell automobiles and automobile accessories.

The great west will not be overlooked by the makers—they will go half-way and meet the west at Chicago, which will prove the sample room. The great line of goods of the east—and partially from the west—will be examined with care, and hundreds of thousands of dollars will be left as a guarantee that the west wants automobiles, not only for pleasure purposes, but as adjuncts to the commercial life of the district beyond the Mississippi river.

Don't forget and don't overlook the west!



The game of tag goes on merrily in Philadelphia. Just at present the state seems to be it.

Railroad passes have been denied senators and congressmen. Automobile dealers with spare cars would better take to the woods.

Governor Guild, of Massachusetts, has been converted. He now wants a more just and more reasonable legislation for motorists. Little drops of water, little grains of sand, etc., you know.

It doesn't seem exactly fair to hold the beach races immediately after the New York show. Why not hold them after the Chicago show and give a few more a chance to go south for health's sake?

As a fine example of hustle, the Pittsburg consulate of the American Motor League is certainly a shining example. Its danger sign work only shows how motoring can be benefited if everyone puts a shoulder to the wheel.

An exhibitor at the New York show remarked that the only reason French cars would sell in this country this year was because the home makers would be unable to supply the demand—which, by the way, may cause the foreigners to do a little hard thinking, as to the future at least.

The Week

Fred Marriott in Stanley steamer cuts mile record twice at Ormond, first doing 32 1-5 seconds, then 31 4-5 seconds; also does 5 miles in 2 minutes 47 seconds, which is a new record; Hemery does 5 miles in 2 minutes 34 seconds and is disqualified for refusing to run a heat over.

Reliability test in Australia proves remarkable contest, five cars being tied at end of two extra trials; G. Hobbes makes strong showing in a Mercedes.

Speed dope on road performances during 1905 shows Baron de Caters had best average when he did 72.16 mile rate in Gaillon hill climb.

No changes made in personnel of officers of National Association of Automobile Manufacturers at annual election held in New York.

Postmaster General Cortelyou will try-out automobiles with a view to using them in rural free delivery service.

Frelinghuysen bill introduced into New Jersey legislature causes stir among Philadelphia motorists.

Privy Councillor Goldberger, one of the founders of the Imperial Automobile Club—the Automobile Club of Germany that was—says Swiss motorphobia can be overcome by studying Swiss susceptibilities and obeying regulations. Somewhat on the order of a man going into a front yard guarded by a big dog, throwing him a bone and calling him "Good Towser," eh, Herr Goldberger, privy councillor, etc.?

And little old United States can do a little old something in the speed line, too.

The Chicago Tribune's plaintive little whine of Tuesday of this week indicates the beginning of the end—of its motorphobism.

Regarding this locking of horns over the English and French shows, it reminds one of the small boy putting a chip on his shoulder and daring the other kid to knock it off.

If Percy Megargel runs onto any more wintry weather on his transcontinental tour he will soon be qualified to go with the Belgian gentleman who aspires to drive an automobile to the south pole.

The dead and sleeping motoring organizations might establish headquarters in and about New Jersey and Pennsylvania if they wish to learn just what hardships motorists really have to endure from some of the laws that are in existence.

Now that the library gag has worn out, Andrew Carnegie might break into print by joining in the garage-building rush. A livery for the automobile is getting to be just as much a necessity as a library. No well regulated family can get along without them both.

WHAT CHANGES WILL COMING YEARS BRING?

What will be the talking points on the cars exhibited at the New York and Chicago automobile shows in the year 1910? According to the present rapid strides these points will not be pressed steel frames, for then all frames will be alike; nor will they be on this or that axle design, because all axles will be of accepted design. One cannot look for discussions on this particular body line or that upholstering feature, because by that date any buyer will have the privilege of selecting whatever style of body and finish he desires. What, then, will be the talking points? History repeats itself, and while the automobile has not gone through a long metamorphosis it is nevertheless a creation subject to the unalterable laws of cause and effect that have ruled in the past and are sufficiently certain to control the future, so that prophesy is not limited to the superhumans, by any means.

Two years ago buyers looked at the upholstering, were satisfied with the color of the body, felt tickled at the sound of the particular horn attached, and if the slope of the steering wheel was suitable a sale was the result. Last year ball or roller bearings came in for discussion—the kind of springs, make of tires, method of lubrication, were hurled one after another at the perspiring salesman. This season the educational effects of a year are noticeable. Buyers are interested in whether the cylinders are reamed or ground; most of the purchasers are careful as to the ignition, whether high or low tension; all want to know the bearings used, and a few energetic ones inquire as to the metals used in this or that part of the machine and the tensile strength of each.

What will come next year? Undoubtedly one can look for queries on cylinder capacity, compression, and how much of the time the car can be operated on direct drive. Another year and the things that are to be seen will be of little consequence and indicator curves, the exact period of ignition, the composition of metals and a dozen other questions on the unseen features of a car will be propounded. So the steps of progress will continue—the 2 plus 2 makes 4 proposition will be left behind just as the boy forgets his hobbyhorse and craves for the pony. The boy operator of a few years ago becomes the expert of tomorrow and so goes the tide of progressive education, the maker racking brain and brawn to produce the best and the buyer searching within and without for merits and defects. This educational influence is world-wide. The automobile created it, gave it its impetus and will continue it as long as imperfections are to be found.

NEW YORK OVER---NOW CHICAGO

Two Shows in Gotham Wind Up After Successful Run—Volume of Business Done Far Exceeds Expectations—Estimate Made of 175,000 Attendance at Both Affairs

New York, Jan. 21—The king is dead; long live the king! Father Knickerbocker's shows are things of the past and the trade is now looking ahead to Chicago and the week of February 3-10, with Ormond in between to make everyone forget the mad whirl of work and excitement that marked the strenuous sessions at the garden and armory last week. Both places closed their doors for the last time right on the dot—11 o'clock last night. There was no dilly-dallying about it, either, and a seeker after information, prospective buyer or just simply plain rubberneck, was given short shrift after the long hand of the clock indicated that the Manhattan exhibitions of 1906 had died an official death. While the two shows differed in character and general beauty from the loner of a year ago, it was the same old close—a rush to get away and forget for a couple of weeks that there are such things as automobile shows.

As the last visitor was ushered out the gentlemen of the blue jeans brigade assumed command and the hegira was on in earnest. All the loose odds and ends of each exhibit had been gathered together earlier in the day, but it was impossible to disturb the exhibits in general because of the orders that the harmony of the scene was not to be disturbed until the last dog was hung. Each chassis in both buildings had to be cared for as carefully as a mother wrapping up the baby for its first trip out of doors. Huge piles of burlap and wadding littered each stand and it was not long before every chassis had been bandaged until it looked like a man who had called an Irish policeman an A. P. A. With the cars themselves it was far easier. Outside the big buildings were rows of packing cases and into each was wheeled a car, boards nailed on and then a boost onto the waiting trucks.

Like an army in retreat, the motoring brigades evacuated their strongholds, but it was an orderly retreat and little was left for the enemy. Of course it was impossible to empty the big buildings in one night, for it was a case of first come first served at the receiving office, but the first lot of cars were on the sidewalks inside of 10 minutes after the bands in each place had squeezed the last note out of "Home, Sweet Home." All day today the processions are moving and it will not be until late tonight that garden and armory will be full of emptiness.

But they were grand shows, magnificent exhibitions, the like of which the automobile world on this side of the Atlantic has never before seen and ones which future exhibitions will have to strive hard to beat. Just how many people passed through the doors at both places it would be hard to estimate at this writing, no official figures having been given out, but utterances of people connected with the managements of the two shows place the total attendance at 95,000 for the garden and 80,000 for the armory—a grand total of 175,000 for the week. As to the profits the outsiders are also at sea, but it is said money was made in both places. The lavish decorations of the garden cost a pot of money and it is said authoritatively that the A. L. A. M. spent $43,000 for the gorgeousness that delighted the eye. At the armory the clubmen relied more on the grim and warlike beauty of the building for their setting, although, of course, there was the usual lot of dudads in staff and bunting to relieve things a bit. Still, at that it cost $25,000 to fix the place up.

As compared with the figures given out after the London and Paris shows the American attendance may seem small, but the exhibitors did not find it so, for already there is talk of doing something to weed out the dead ones another year and make the show more valuable from a business point of view. It is figured now that there were too many rubbernecks in the human seas that ebbed and flowed through the aisles of the two big places. The moneyless ones bobbed up just when they were not wanted, often spoiling a sale by interrupting the salesmen with some irrelevant question just as he was about to hook his fish. Observation of these conditions has led to the suggestion that another year the gate tax be raised from 50 cents to $2 a head and in this way keep out all but those who are really desirous of buying automobiles and who have the cash in their pockets for the first payment or who possess fountain pens and check books.

Everyone, however, does not take this view of the situation. H. H. Franklin, treasurer of the A. L. A. M., favors subordinating the commercial side of the shows and making them artistic and social exhibitions instead of mercantile expositions.

"The value of the shows is not in the sales made, but in attracting public attention to the automobile," he says. "An effort will be made to have the garden show of next year more impressive and more of a social event."

The Automobile Club of America is jubilant over its success and George Moore Smith, chairman of the exhibition committee, issued the following last night:

"The exhibition committee of the Automobile Club of America is more than satisfied with the outcome of the club's sixth annual show, and considers that the continued support of the public and the general satisfaction expressed by the exhibitors are the strongest possible endorsement of the broad principle in which the club has always believed since its first show in 1900—that an automobile show should be open to the whole world and embrace within its doors everything that can be gathered together to show the year's progress in the field of motoring."

He would be a wonderful man who could figure just how much business was done at the two shows. Of course, all sorts of extravagant claims are made of outputs sold, of the patronage of the silk-stocking element of motoring and other rumors of the sort that always float around at the fag-end of show week. There is no doubt but what the mercantile end of the affairs was something extraordinary. No one doubts but what many, many cars were sold, but some of the stories can no doubt be taken only after the vigorous use of the salt cellar. If one can get any satisfaction out of hearsay, it might not be out of place to record that at the garden the talk is that 900 cars were sold at retail during the week. The armory people make strong claims, too, it being said that there the books show 600 cars going direct from the maker to the user. The demand was to a certain extent for high-powered cars, too, and the dopesters claim the total business done will amount to fully $4,500,000, retail.

No official statements regarding next year's plans have been given out by either side. It was said by some of the armory people that an earlier show would suit them and their patrons better, but this will be impossible unless the Paris show is held in October. This seems unlikely, though, since the strong denials from France that such was the intention. The foreign cars are needed here to round out the American shows and give the Yankees a chance to compare the home product with the foreign offerings. It is not even known if the Automobile Club of America can get the armory another year. There is some talk of opposition from owners of other buildings that could be used for show purposes and some say the pull will be strong enough to take the armory away from the A. C. A. Still, no one can tell what's doing until one side or the other shows its hand. There is no doubt concerning the garden, though, and the friends of the A. C. A. claim there is not the slightest doubt but what the other affair will again be held in the home of the Sixty-ninth regiment.

There were meetings and dinners galore the last of the week. The trade believes that there is no better way to make a contented man than to fill his stomach and in consequence the hotels reaped a golden harvest through the liberality of concerns like the E. R. Thomas Motor Co., George N. Pierce Co., the Continental Caoutchouc Co. and the Hyatt Roller Bearings Co., which gave elaborate spreads to their trade connections. The National Associ-

ation of Automobile Manufacturers held its sixth annual meeting, and the American Automobile Association and the American Motor League assembled. The N. A. A. M. reported an active membership of twenty-eight and showed a balance of $30,000 in the treasury as compared with $10,000 a year ago, although quite a pile has been spent in missionary work like contributing to road improvements and legislative funds. No change was made in the personnel of the officials outside of electing E. R. Thomas as the successor of Marcus I. Brock on the board of directors, Mr. Brock having severed his connection with the Autocar company to become assistant to George H. Day, manager of the A. L. A. M. This leaves the officials as follows: President, E. H. Cutler; first vice-president, G. W. Bennett; second vice-president, A. L. Pope; third vice-president, S. D. Waldon; treasurer, W. R. Innis; secretary, Percy Owen; manager, S. A. Miles.

The sessions of the American Automobile Association had more doing, the boost given speedways causing no little comment among those who care for road racing. This move is quite mysterious in its way, having its origin in an innocent resolution adopted by the board of directors at its Tuesday's session. The measure reads:

"Resolved, That it is the sense of the board of directors of the A. A. A. that special speedways for automobile racing and testing of cars have become necessary, and that this board encourage the construction of such speedways throughout the country."

Some thought this meant that the three A's had put a ban on road racing, but those in the know declare this is not so necessarily. It believes in encouraging speedways, it is claimed, but there is no intention of sidetracking international events like the Vanderbilt.

The report of the treasurer to the board showed that there was a balance of $4,520, while the secretary reported sixty-two clubs affiliated with the organization, representing a total membership of over 8,000. A nominating committee, consisting of Elliott C. Lee, W. T. White and A. R. Pardington, was appointed to report at the Chicago meeting. The talk now is for John Farson, of Chicago, to succeed Eliott C. Lee as president.

The general meeting of the association the next day produced lots of talk, the principal topics of conversation being the waning supply of gasoline, legislative battles, the dust evil and the use of searchlights by big cities.

SYRACUSE CLUB ELECTION

Syracuse, N. Y., Jan. 22—At the annual meeting of the Automobile Club of Syracuse, held last Monday night, the following officers were elected for the ensuing year: President, Willett L. Brown; vice president, C. Arthur Benjamin; second vice president, H. W. Smith; secretary and treasurer, Foreman Wilkinson.

MEGARGEL IN THE MUD

Trip Through New Mexico Proves Extra Hard for the Reo Transcontinental Tourist

Blue Water, N. M., Jan. 16—While my friends connected with the automobile trade are asesmbled in force in either Madison Square garden or the new Sixty-ninth regiment armory, in New York city, gazing with admiration at the new 1906 models, my companion, Fassett, and myself are plowing our way through the mud of eastern New Mexico, wondering which is worse—the snow and zero weather of Arizona or the milder and muddier conditions that prevail in this section. Personally I prefer the cold, although perhaps it is more dangerous.

It is surprising how hard a car runs through this New Mexico doby mud, but it is even more surprising that a car will run at all, for even the old Indian traders refuse to risk it in their wagons. Every few feet we have to stop and with sticks scrape the mud off the wheels, which if left alone would each gather several hundred pounds of mud in a 100-yard spin. When we get out of the car to scrape the wheels, the mud clings to our feet just as readily as it does to the tires. Our track all the way back to where we were stranded in the quicksand of the Puerce river is distinct and I think will remain for at least a year, for the wheel marks resemble two plowed furrows.

New Mexico is certainly a mud territory and I don't blame Arizona for kicking on joint-statehood. Here all the houses are made of doby mud, some of them two stories high. Occasionally real bricks are used on the corners, but generally the entire house is of mud. I don't mean by this that the inhabitants live in mud shanties like those of western Nebraska, for their abodes are in some cases very pretentious, beautifully finished in hardwood inside and painted yellow outside, yet of mud construction. Our wheels have been endeavoring to build us a mud house ever since we entered the state and the outside of our car at the present time looks all the world as though it were constructed of doby. We haven't been able to see a spoke in any of the wheels for the past week. A casual observer would question our having spokes.

The only human beings we encounter on our trip across New Mexico are Indians, Mexicans and an occasional white trader. The hands employed on the Santa Fe in track construction and repairing are all Mexicans, even the section bosses being from below the Rio Grande country. Nobody thinks of using a wagon outside of the little towns and villages. All ride horseback and if they have anything to carry with them they strap it on the backs of little Mexican burros, loading their beasts of burden down until one would naturally think the last straw had been added several times over. The Navajo Indians are among the best horsemen in the world and own thousands of little, gaunt, piebald ponies, most of which are the most vicious brutes imaginable,

In Gallup I ran across an old friend, Dr. Cornell, of Chicago, once an enthusiastic Chicago automobilist, who has moved out into New Mexico and started up in the dentistry business. He is the only dentist for 100 miles around and is doing a rushing business.—PERCY F. MEGARGEL.

UNCLE SAM PROGRESSIVE

Washington, D. C., Jan. 22—Postmaster General Cortelyou has communicated with the Waltham Mfg. Co. for the purpose of arranging a date for a trial of the Orient car and buckboard for use in the rural mail service. The lifting of the ban on automobiles by Cortelyou, who has heretofore been opposed to the use of the motor car in the mail service, has made possible the establishment of a rural parcel delivery system which has been advocated for some time. Farmers have been crying for this sort of service, but so far the department has not seen its way clear to granting their demands for the reason that opposition was met with from country merchants who feared the mail order houses would profit too much at their expense. In support of their argument they claimed the service was delayed by the carrier being loaded down with too much truck. But with the men in gray driving automobiles all this will be changed and it will be possible for the rural parcel post to be established. Congressman Ellis, of Missouri, is an advocate of this and has already introduced a bill which paves the way for the new system. It proposes to change the laws so a package weighing not more than 5 pounds can be sent through the mails at the rate of 3 cents a pound. This revenue would also help out Uncle Sam, who is now paying something like $20,000 a year in order that his rural nephews may get their mail delivered at their door. The average revenue at present is only 41 cents per day per carrier, while it costs Uncle Samuel $2 a day per carrier to maintain the service.

CRYSTAL PALACE SHOW

London, Jan. 13—Only the ground floor of the Crystal Palace will be used for the show that opens on the 26th. It will be a minor affair compared with the Olympia, for only some three dozen cars will exhibit, including the Spyker, Brown, Brouhot, Pillian, Clement, Corre, Rochet-Schneider, Darracq, Fabry, Fiat, Gobron-Brillie, Rex and Vulcan. Undoubtedly the motor boat part of the exhibition will be prominent, for there is a lake 300 yards long and 20 yards broad inside Crystal Palace grounds which can be used for demonstrating purposes. Automobiles can be tested outside, Anerley hill, one of the steepest inclines in and around London, being close enough for the purpose.

FAIL TO PICK THE TROPHY WINNER

Australian Dunlop Reliability Test Results in Very Remarkable Finish

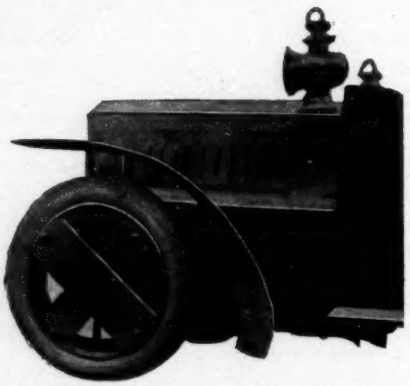
GRIMWADE, WILKINSON, HOBBS, DAY, TARRANT, FINISHERS IN AUSTRALIAN TEST.

Melbourne, Australia, Dec 1—Probably the most sensational reliability test ever contested by automobiles has just been completed in which it has been found impossible to pick a definite winner after a run of 1,276 miles over Australian roads, good, bad and indifferent, and in which it was necessary to put on two non-stop events at the conclusion of the regular affair in the hopes of deciding the ownership of the cup. All this took place in the Dunlop reliability contest from Melbourne to Sydney, which started November 14 and finished on the 18th, after which the run-overs were put on. These, however, did not settle the vexed question, for of the seven cars that came through the regular run and tied for points five of them also fulfilled all the conditions of the extra trips, the first of which was from Sydney to Medlow and back, a distance of 132 miles, with a rise of 3,500 feet over the Blue mountains. Then another non-stop was run, from Sydney back to Melbourne, with the same result.

As a result of this remarkable contest G. Hobbs, Mercedes; W. R. Grimwade, Argyll; W. B. Wilkinson, Talbot; H. Tarrant, Tarrant, and S. H. Day, de Dion, are in the tie, each having fulfilled all the conditions of the extra lap.

In the original event, the test from Melbourne to Sydney, S. Day, 8-horsepower de Dion, won in class A, having 3,000 points. In class B, J. W. Moffatt, 10-horsepower de Dion; W. B. Wilkinson, 10-horsepower Argyll; A. Fauvel, 12-horsepower Braiser; W. R. Grimwade, 10-12-horsepower Talbot, and H. Tarrant, 8-10-horsepower Tarrant, tied for first, each having 3,000 points, while in class C, G. Hobbs, 18-28-horsepower Mercedes, was the only one with the full count of 3,000. Class D, for motor cycles, went to E. James, in a 3½-horsepower Brown.

With this tangle to unravel the committee decided on the first non-stop test. While it was permissible to stop for tire repairs it was necesasry to keep the engine running all the time. The class A car had to maintain an average of 16 miles an hour, class B cars 19 miles an hour, while the loner in class C, Hobbs, had to do 22 miles. Any competitor who finished over 30 minutes faster than the time allowance forfeited five points and also had to keep his engine running. Of the seven cars left in six came through, although one of these—Tarrant's—was penalized three points for the accidental stopping of the engine. Fauvel met with an accident and had to quit the contest.



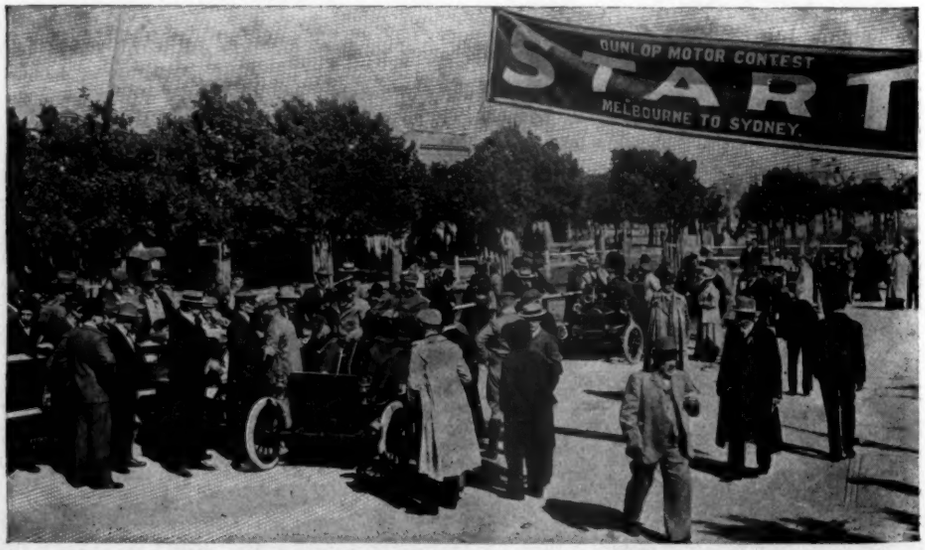
ARNOTT'S IMPROVISED WHEEL REPAIR

Hobbs in his Mercedes averaged 24 miles an hour, which included the climb of 3,500 feet over the Blue mountains. On this grade he did 30 miles an hour. Grimwade did better than 20 miles an hour. Day maintained his 16-mile schedule.

With a tie still confronting them the committeemen put their heads together and ordered the survivors to try another non-stop, this time from Sydney back to Melbourne. But even this failed to accomplish its purpose, for Messrs Hobbs, Grimwade, Wilkinson, Tarrant and Day were still on even terms, although every one of them, except Hobbs, had been penalized for minor offenses. They had gone 1,276 miles, 833 of which were under non-stop conditions, and no winner had been decided. Just what the Dunlop company will do in the matter has not been settled, but Manager Sherwood thinks the company will probably keep the cup for another year and give each of the successful contestants a handsome trophy.

Final results showed that Hobbs had covered the 1,276 miles in 49 hours 12 minutes, Grimwade 64 hours 43 minutes 30 seconds, Wilkinson 61 hours 55 minutes 10 seconds, Tarrant 64 hours 59 minutes 30 seconds, Day 75 hours 23 minutes 15 seconds. Although Hobbs had a clean record and is looked upon as the real winner, still it was impossible to award him the trophy for as the survivors were on even terms at the end of the original run and as each had fulfilled all the non-stop conditions of the extra tests there was nothing left but to call it a tie.

Twenty-three cars started on the real cup contest. This course was only 572 miles in length, the main road being the old overland stage route. Divided, the distance represented 343 miles of fairly good roads, 140 just so so and 89 miles poor. On the Victorian side the roads were in wretched shape, but in New South Wales they were really good. One of the features of the trip was the effective repairing of a broken wheel by J. M. Arnott. Going to a farm house he secured two stout planks which he placed crosswise to the rim, forming rough spokes. He bolted the boards together and with this homemade contrivance actually drove his car 300 miles before the improvised contraption broke, forcing him to quit.



START OF MELBOURNE-SIDNEY RELIABILITY TEST FOR DUNLOP TROPHY

THE GLIDDEN TOUR ROUTE IN CANADA

St. Catharines, Ont., Jan. 22—The announcement that the 1906 Glidden tour will take in Canada is received with joy on this side of the border, and the cities along the frontier are displaying a lively interest in the big automobile event, which is expected to do much toward booming the game in the dominion. The route settled on has met with the approval of those familiar with Canadian highways and one tradesman, Frederick Sager, of the Packard Electric Co., which handles the Oldsmobile, has gone so far as to collect data for the tourists.

As described by Mr. Sager, the route through Canada is as follows: Leave Buffalo for Niagara Falls, view the falls, and then cross into Canada. The road from Niagara Falls to St. Catharines by way of Stamford and St. David's is the best. Though a sandy stretch, it is for the most part down grade, and easy on high gear. From St. David's to St. Catharines is a pretty good road. From here on the route goes to Hamilton, through Beamsville and Grimsby, over an old graveled road. At Hamilton lunch may be obtained at either the Hotel Royal or the Waldorf. The distance between Hamilton and Toronto is about 40 miles by road, and unless favored with dry weather this stretch is apt to be bad going in places.

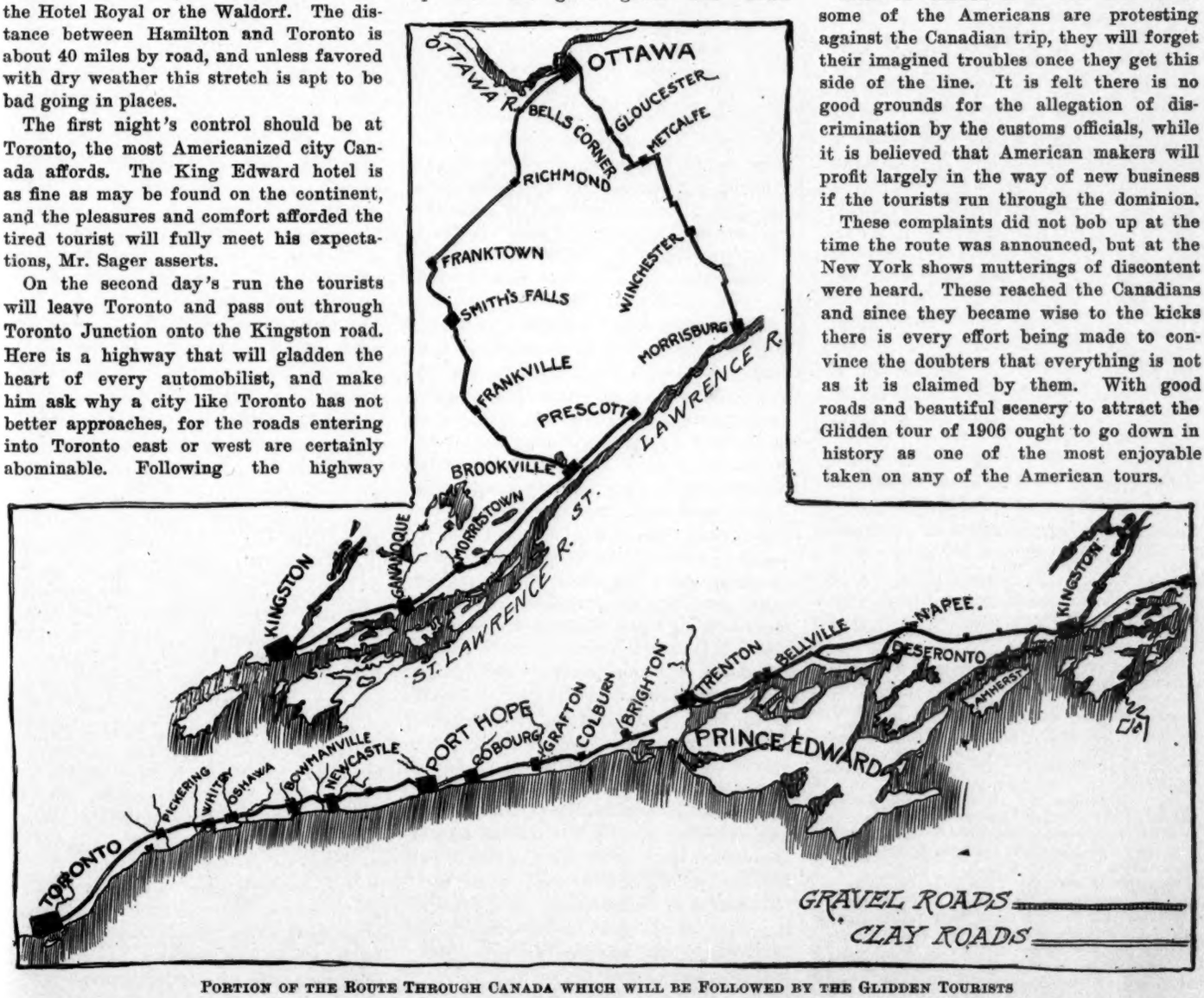
The first night's control should be at Toronto, the most Americanized city Canada affords. The King Edward hotel is as fine as may be found on the continent, and the pleasures and comfort afforded the tired tourist will fully meet his expectations, Mr. Sager asserts.

On the second day's run the tourists will leave Toronto and pass out through Toronto Junction onto the Kingston road. Here is a highway that will gladden the heart of every automobilist, and make him ask why a city like Toronto has not better approaches, for the roads entering into Toronto east or west are certainly abominable. Following the highway through Whitby, Oshawa, Port Hope, Cobourg, Colborne, Brighton, Trenton to Belleville are as good roads as any automobilist ever wished for, and they do not end here, for they lay before you all the way to Kingston, like one long drawn out silver streak. But at Belleville the tourists should stop for lunch, and here is to be found the best hotel—Hotel Quinte—between Toronto and Ottawa or Montreal. In the afternoon the tourists go through Belleville and go to Shannonville and Napanee, but not touching Deseronto, thus saving distance and bad roads. At Kingston a stop is made for the second night. The Hotel Randolph is favored. This day's run will be a picturesque ride, following along in plain view of old Lake Ontario, or with just a glimpse of it through the trees. Nearing Belleville the tourists will come in view of the beautiful Bay of Quinte, and as they reach Kingston comes the first sight of the renowned St. Lawrence and Thousand Islands.

The third day's run leaves Kingston, passing the Barracks, over the toll bridge, up the hill—good grade—and down through Gananoque. Until Gananoque is reached there is some difficult driving, but from there on to Brockville it is good going. From Brockville north to Smith's Falls, by way of Addison and Frankville, is a good gravel road, and at Smith's Falls is the place to stop for lunch—at the Rideau hotel. From Smith's Falls to Frankton will be encountered a hard pull through sand and clay, but without any heavy grades. From Richmond the road passes through Bell's Corners and into Ottawa, over roads like those of the border line. The highways for the first 3 days of the trip will be found to be better than the next 3 days. From Ottawa to Montreal are clay roads for the most part. If dry nothing better could be desired, but if not tire grips are in order. At Ottawa are the Russell and Grand Union hotels. From Ottawa it is recommended going by way of Metcalf, Morrisburg and Cornwall, following the St. Lawrence. At Cornwall, Ont., the Rossmore hotel is a splendid little hotel to lunch at, and at Montreal is the Place Viger.

Here in Canada it is felt that while some of the Americans are protesting against the Canadian trip, they will forget their imagined troubles once they get this side of the line. It is felt there is no good grounds for the allegation of discrimination by the customs officials, while it is believed that American makers will profit largely in the way of new business if the tourists run through the dominion.

These complaints did not bob up at the time the route was announced, but at the New York shows mutterings of discontent were heard. These reached the Canadians and since they became wise to the kicks there is every effort being made to convince the doubters that everything is not as it is claimed by them. With good roads and beautiful scenery to attract the Glidden tour of 1906 ought to go down in history as one of the most enjoyable taken on any of the American tours.



PORTION OF THE ROUTE THROUGH CANADA WHICH WILL BE FOLLOWED BY THE GLIDDEN TOURISTS

LEGAL LIGHTS AND SIDE LIGHTS

NEW JERSEY'S DRASTIC BILL

Philadelphia, Jan. 23—Philadelphia automobilists are up in arms against the Frelinghuysen bill introduced into the New Jersey legislature at Trenton on Monday night. Much of the 1-day touring of the Philadelphians is done in the garden state, and the placing of the proposed law on the statute book will hit them as hard as it will the Jerseymen. The details of the bill had been made public before its introduction, and a combination meeting of the Automobile Club of Philadelphia and the Philadelphia Automobile Dealers' Association was held on Monday afternoon to consider it. Besides agreeing to send a large representation to Trenton to oppose the measure when it comes to a vote, it was decided to ask the New Yorkers to join with them in assisting the Jersey automobilists to defeat it.

The Frelinghuysen measure is most radical, and in the opinion of W. F. Sadler, chairman of the law committee of the Associated Automobile Clubs of New Jersey, at whose Philadelphia office the meeting was held, it will drive from the state upwards of $11,000,000 invested in automobile factories, besides antagonizing the 15,000 persons who hold licenses to operate cars in the state. The section providing for a license fee of 50 cents per horsepower for all machines and 25 cents per horsepower for operators would, Mr. Sadler stated, net the state between $100,000 and $150,000. Boiled down, the bill by sections follows:

First—Provides for a commissioner of motor vehicles to be attached to the office of the secretary of state and for as many inspectors as may be necessary, who shall have power to arrest, and who are charged with the duty of detecting violations and obtaining evidence of violations.

Second—Gives to the commissioner authority to authorize chiefs of police to give certificates of registration and licenses to operators, and requires all persons operating a vehicle to be licensed.

Third—Provides for an examination of all persons before they are licensed to run motor vehicles.

Fourth—The Commissioner shall keep a record of his official acts and shall make an annual report to the governor, with recommendations regarding the use of motor vehicles.

Fifth—Provides for an annual registration fee of 50 cents per horsepower for all vehicles and 25 cents per horsepower for all drivers.

Sixth—Provides for a "short-time tourist registration" of $1 per day.

Seventh—Limits the number of machines to be run under manufacturers' registration to five, and the number of days which a person can have a dealer's machine on dealer's registration number to five.

Eighth—Limits the age of driver to the minimum of 18.

Ninth—Driver's photograph must be attached to his license.

Tenth—Provides that the official numbers of the machines shall be kept clean and free from dirt.

Eleventh—Provides for the rate of a mile in 7 minutes in populous portions of towns and cities; at crossings of country roads and while passing vehicles of any kind elsewhere at the rate of a mile in 3 minutes, but at no time so as to endanger life, limb or property of any person, and no speed regulations shall be held to relieve any driver of the consequences of his negligence.

Twelfth—Power to arrest without warrant for any violation.

Thirteenth—Warrants issued shall be good throughout the state.

Fourteenth—Any person convicted of violating any of the provisions of the act shall be subjected to a fine of not more than $500 and imprisonment in the county jail for not more than 60 days.

Fifteenth—Any magistrate may revoke a driver's license, but the commissioner, for good cause, may restore it.

Sixteenth—All money derived from any source under this act shall become part of the state road fund.

NOT PROOF AGAINST DEBT

Louisville, Jan. 19—An automobile is not proof against an attachment for debt under the old exemption law as construed by Judge Thomas R. Gordon in an opinion delivered by him at joint session. The exemption statute which was adopted by the Kentucky legislature about a half century before automobiles were seriously thought of, renders free from subjection for debt "a wagon or dray, or cart, also two horses or a horse and yoke of oxen." Judge Gordon does not see how a most liberal construction of this statute could be made to include automobiles.

The question arose in the case of George E. Cross against C. E. Price on a $300 note. Upon filing of the suit the defendant's automobile, valued by him at $300, was attached and is now held by the sheriff to satisfy the debt, pending final judgment of the court. Mr. Price claims his business makes it necessary for him to go a great deal about the city and, furthermore, that he sold his horse and buggy, which he used for this purpose, in order to purchase the automobile. Under the exemption law the sheriff would have clearly possessed no right to levy on the horse and buggy.

"Courts of other states," said Judge Gordon, in passing on the case, "I find, have gone so far as to declare a horse a mule, in passing on exemption questions, and have also said that a buggy was a wagon and a colt less than a year old was a work horse, but the authorities are silent as to automobiles. If the automobile involved were worth $3,000 instead of $300 an exemption for debt under such circumstances can be readily seen as working a hardship upon the creditor. The demurrer to the amended answer is sustained in this case by the court."

This decision of Judge Gordon will clear up a point which has been much discussed by local legal luminaries. It is seldom that this phase of the situation comes up in an automobile form, so this particular case will form a precedent for future rulings. The sheriff is one of the perplexed who has been set right.

TALKS TAX IN NEW YORK

Albany, N. Y., Jan 21—It was given out here today that plans have been completed by Senator Irving l'Hommedieu, of Orleans county, to introduce in the legislature next week a bill establishing a tax on all automobile vehicles at the rate of $1 per horsepower, the revenue, which he believes will amount to at least $400,000, to be devoted to the improvement and maintenance of state roads. Senator l'Hommedieu has been in consultation with Governor Higgins' counsel, former Senator Cuthbert W. Pound, relative to the constitutionality of the tax feature of the bill and believes that his measure will be unobjectionable on that score.

"There is no doubt in my mind," says Senator l'Hommedieu, "that the bill will be passed at this session and will be signed by the governor. The executive committee of the supervisors' annual highway convention, which met in this city 10 days ago, adopted resolutions favoring a measure that would impose a tax of not more than $1.50 per horsepower on all automobiles the proceeds of the tax to be devoted to highway maintenance. We are about to expend $50,000,000 on good roads, and an immense revenue is needed to keep these roads in shape, and to my mind there is no plan so feasible as to tax automobiles. Automobilists virtually have accepted the provisions of my bill, but there may be an amendment to except motor vehicles of 10 horsepower and less, for in this class are to be found delivery wagons and the like."

WHEN IS IT ONE?

Philadelphia, Jan. 22—"Is a disabled automobile an automobile still?" is the question which is worrying Frank Starbuck, the erstwhile conqueror of Jimmy Michael in the long-distance bicycle racing days. "If it can't go, it isn't an automobile no more than an engineless chassis is an automobile." Thus argues Starbuck. It appears his car broke down and he engaged a man to tow it to a Palmyra, N. J., garage for repairs. On the trip up the Burlington pike, while still in the limits of Camden county, the outfit was stopped by the police because the towed car was equipped with but a single tag—a blue Pennsylvania one. It cost $25 to secure the release of the caravan. and it reached the shelter of the Palmyra machine shop without further molestation. A New Jersey tag had to be secured, however, before the car could be brought home. Starbuck thinks he has been unjustly fined, but hesitates to send good money after bad by hiring a lawyer.

WHAT 1905 PRODUCED IN THE WAY OF SPEED

Date	Event	Distance	Winner	Time			Course	Average per hour	Make of car	H.P.	No. of Cylinders	Tires
				HRS.	MIN.	SEC.		MILES				
Jan. 23	Record trial	5 miles s.s.	A. McDonald		3	17	Ormond-Daytona	91.37	Napier	90	6	Dunlop
Jan. 24	Mile race	1 mile f.s.	A. McDonald			34 2-5	Ormond-Daytona	104.65	Napier	90	6	Dunlop
Jan. 26	Bowden cup	1 kilo. f.s.	A. McDonald			23	Ormond-Daytona	97.25	Napier	90	6	Dunlop
Jan. 26	Kilometer race	1 kilo. s.s.	A. McDonald			27 2-5	Ormond-Daytona	82.84	Napier	90	6	Palmer
Jan. 26	Mile race	1 mile s.s.	A. McDonald			37 2-5	Ormond-Daytona	96.25	Napier	90	6	Palmer
Jan. 30	Vanderbilt cup	100 miles	W. Fletcher	1	18	24	Ormond-Daytona	76.75	De Dietrich	80	4	Continental
Jan. 30	Vanderbilt cup	50 miles en route	W. Fletcher		38	51	Ormond-Dyytona	77.25	De Dietrich	80	4	Continental
Jan. 31	Miller trophy	10 miles	A. McDonald		07	15	Ormond-Daytona	96	Napier	90	6	Palmer
Jan. 31	Thomas trophy	20 miles 2-minute controls	A. McDonald		13	27	Ormond-Daytona	89.21	Napier	90	6	Palmer
Feb. 1	Record trial	1 mile f.s.	H. L. Bowden			32 4-5	Ormond-Daytona	109.75	Mercedes	120	4	Continental
Feb. 1	Record trial	1 kilo. f.s.	C. Earp			20 3-5	Ormond-Daytona	108.59	Mercedes	120	4	Continental
May 30	English Bennett trial	306¾ miles	A. Lee Guinness	5	57	30	Isle of Man 6 laps	52	Napier	80	4	Palmer
June 14	Bexhill	½ mile s.s. 3 trials	L. Thery	32 4-5	30 2-5	31	Bexhill	58	Darracq	100	4	
June 16	French Bennett trial	341:4 miles	L. Thery	7	34	49 1-5	Circuit d'Auvergne 4 laps	45	Richard-Brasier	96	4	Michelin
July 5	Bennett cup	341:4 miles	Rigolly	7	02	42 3-5	Circuit d'Auvergne	84.51	Richard-Brasier	96	4	Michelin
July 11	Ostend speed trials	1 kilo. f.s.	Wagner			21 3-5	Snaeskerke	103.55	Gobron-Brillie	110	4	Michelin
July 11	Ostend speed trials	10 kilo. s.s.	Wagner		04	08	Snaeskerke	90.25	Darracq	80	4	Michelin
July 13	Ostend speed trials	1 mile s.s.	C. Earp			49 4-5	Snaeskerke	72.29	Darracq	80	4	Palmer
July 19	Brighton speed trials	about 1 mile s.s.	J. E. Hutton			47 3-5	Marine Parade	75.50	Napier	90	6	Dunlop
July 20	Brighton speed trials	about 1 mile s.s.	C. Earp			48 2-5	Marine Parade	74.50	Mercedes	120	4	Palmer
July 21	Brighton speed trials	1 kilo. f.s. 3 trials	A. Lee Guinness	21 3-5	24 3-5	23	Marine Parade	93	Napier	90	6	Dunlop
July 22	Brighton speed trials	1 kilo. f.s. 3 trials	C. Earp	25 3-5	24 2-5	25 1-5	Marine Parade	89	Darracq	100	4	Palmer
July 27	Blackpool speed trials	1 mile f.s. 3 trials	C. Earp	38 3-5	38 1-5	37 2-5	Blackpool Esplanade	96.25	Napier	90	6	Dunlop
July 28	Blackpool speed trials	1 kilo. f.s. 3 trials	C. Earp	23 1-5	22 4-5	22 4-5	Blackpool Esplanade	98.11	Napier	90	6	Palmer
July 28	Record trial	1 kilo. f.s.	Hemery			21 2-5	Blackpool Esplanade	104.52	Napier	90	6	Palmer
Aug. 7	Circuit Ardennes	372 miles	Hemery	5	58	21 1-5	Bastogne 5 laps	62.60	Darracq	80	4	Michelin
Aug. 7	Circuit Ardennes	100 kilos en route	Raggio		55	18	Bastogne 5 laps	67.3	Darracq	80	4	Michelin
Sept. 10	Florio cup	312 miles	Cagno	4	46	47 2-5	Brescia Circuit 3 laps	65.30	Itala	100	4	Michelin
Sept. 16	Mount Ventoux hill climb	13 miles	C. Earp		19	30	Avignon France	40	Fiat	120	4	Michelin
Sept. 23	American Vanderbilt trials	113:2 miles	B. Dingley	2	00	50 2-5	Long Island 4 laps	56.6	Pope-Toledo	60	4	Diamond
Oct. 1	Chateau-Thierry hill climb	1 kilo. s.s.	C. Earp			38 1-5	Chesneaux Hill	58.56	Napier	120	6	Dunlop
Oct. 8	Dourdan speed trials	1 mile s.s.	C. Earp			53 4-5	Dourdan	66.91	Napier	90	6	Dunlop
Oct. 8	Dourdan speed trials	1 kilo. f.s.	Hemery			25 3-5	Dourdan	87.37	Napier	90	6	Dunlop
Oct. 14	Vanderbilt cup	284 miles	Baron de Caters	4	36	08	Long Island 10 laps	61.5	Darracq	80	4	Dunlop
Oct. 15	Gaillon hill climb	1 kilo. f.s.	F. Dufaux			31	Ste. Barbe Hill	72.16	Mercedes	90	4	Continental
Nov. 13	Record trial	1 kilo f.s.	A. L. Campbell			23	Arles-Salon Road	97.25	Dufaux	150	4	Michelin

JUST at this season of the year when daring drivers from the principal countries on the world's automobile map are attacking old Father Time at Ormond, the motorist who is inclined to spend some of his time making the dope on past performances can look back 12 months and sort of size up the chances for eclipsing the performances of 1905, which was a most brilliant one from a speed point of view. Statistics compiled by competent authorities show that last year thirty-six speed contests were held, including road races, beach trials and hill climbs, and that the speed ranged from 40 miles up to 109¾ miles an hour. The slowest mark was of course made in a hill climb,—Cagno's ascent of Mount Ventoux, while H. L. Bowden, the American, possesses the honor of maintaining the fastest pace of all—that famous mile at Ormond in 32⅘ seconds. These are two extremes, however.

In the road racing game proper it was Raggio, an obscure Italian driver, who was the ready money, bursting into the limelight through his victory in the Florio cup race over the Brescia course in Italy when he did 65.30 miles an hour for 312 miles. It is more than probable—almost certain—that Lancia would have raised this several notches in the Vanderbilt if

it had not been for his accident, for at that time he had averaged 71 miles and had only a short distance to go. But even Raggio was eclipsed for a short distance, for the dope shows that in the Ardennes circuit race Hemery averaged 67.3 miles for 100 kilometers.

Results prove that the sand beach is undoubtedly the fastest for speed purposes and that Ormond is the best place of all over whose sands the old gentleman who wields the hour glass and scythe can be successfully assaulted. Cape May, too, has shown that it possessed qualties that produce speed. Abroad the English held two ripping good meets on the sand—at Blackpool and Brighton, where they hacked away at the kilometer with good results. It is a noticeable fact that the best pace maintained abroad was at Blackpool when Earp tied Baras' kilometer record, of 21⅖ seconds, which has since been lowered to 20⅗ seconds by Hemery. In Earp's trial he showed 104.52 miles an hour. Next to him comes Rigolly's 103.55 miles an hour at Ostend in a kilometer dash at that meet.

Hill climbs are necessarily slow, but at that wonderful time was made abroad, especially by Baron de Caters, who did a phenomenal stunt when he captured the Gaillon hill climb in France, in which the sheet shows he averaged 72.16 miles an hour, much better than ever done even in a road race. The distance, however, was only for a kilometer, the time being 31 seconds. In the Chateau Thierry hill climb Earp averaged 66.91 miles.

The year was marked by three tours and another that was a cross between a tour and a race—the Tourist trophy race in England, the Arrol-Johnston car, driven by J. S. Napier, winning, going the 208 miles 4 furlongs on the Isle of Man and averaging 33 miles an hour, or at the rate of 26 miles to each gallon of gasoline consumed. The Glidden tour in this country was a noteworthy event, the winner turning up in Percy P. Pierce, of Buffalo, in a Pierce Great Arrow. Germany's big event, the Herkomer tour, was captured by Edgar Ladenburg in a Mercedes, while the French test for the Pyrenees cup, was taken by M. Sorel in a de Dietrich.

When it comes to summing up the performances of 1906 it is clearly evident that there will be a wholesale revision of the figures, judging by the startling performances of Marriott in a Stanley steamer at Ormond, Tuesday, and Hemery, Lancia and Marriott Wednesday.

SIMPLICITY THE GOAL TO BE ATTAINED

Manufacturers Endeavoring To Reach This Stage in Construction — Many Fail, Few Succeed in the Effort

A CURSORY examination of the innovation on the 370 automobiles exhibited at the New York automobile shows is convincing proof that whereas numerous makers are struggling for perfection the detail parts of their machines, there is a host of others that show changes, and new devices galore, but many of which cannot be considered steps towards the ultimate goal of motor car perfection—simplicity, strength and reliability.

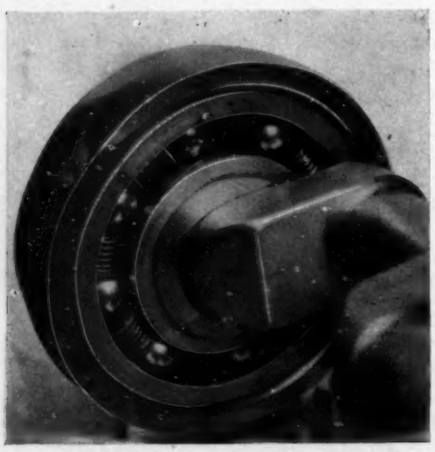
In both shows makers who wanted, and had, talking points were on hand, but talking points are not indicative of progress in automobile construction—far from it. Wherein exists the benefit of using three pieces of metal where one of simple lines will suffice, and why walk around three sides of a city block when the short-cut by way of the fourth side is as safe a thoroughfare and only one-third as long as the other three combined? Metaphorically speaking, this is what a few American car builders, and also what a few of the much-lauded French designers, are doing. Why they follow this beating around the bush game remains known only to themselves, but others—the buyers—will judge for themselves, and, incidentally, it is interesting to note that a few makers, who left their factories with several pocketsfull of talking points, experienced a pronounced frost when their pet constructions were explained.

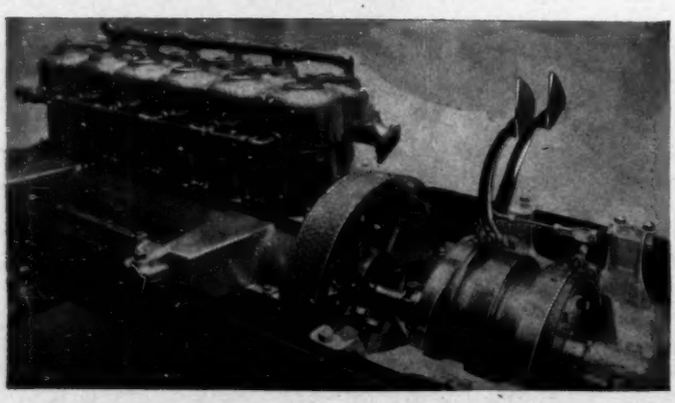
But the wheat was in abundance, and only a little examination was sufficient to scatter the chaff, leaving the good grains. Referring particularly to many points of inherent advantage and consequent simplicity, it is important to note that simplicity is predominant in many of America's new machines. The foreigner has struck this keynote, and such machines as the Peugeot, the new Panhard and the Zust are especially brilliant in this respect. In others, complexity rules. As one instance, in the make-and-break igniters in one car five rocking parts are noticed, whereas in the Peugeot but one is required. Five rocking points mean five times the opportunity for wear, five times the chance of the synchronized ignition getting out, and five times the trouble in correcting matters. But it does not end with the ignition alone. One maker requires a separate shaft for the water pump, another for the commutator, a third for the magneto, and a fourth for an oiler, whereas another maker succeeds in driving all of these parts positively by placing them on the ends of the camshafts, or driving all through a special lay shaft. One designer, by actual count, uses twelve parts in his selective gear-shifting scheme, and another maker accomplishes the same goal with seven parts. In expanding brake shoes, or in tightening the friction bands on external hand brakes, the same multiplicity of parts exists on one machine, whereas its next-door neighbor has not half so many. This tale of complexity versus simplicity runs from radiator to tail light, and after examining each, comparing the different designs, abstracting the principles aimed at, and generalizing on what is best, the inevitable verdict proclaims simplicity as the first, last and greatest essential in motor car building.

Six cylinder motors that a year ago were guessing quantities with all makers as well as buyers have rapidly sprung into prominence, and at present six builders include cars equipped with them in their regular output. The Frayer-Miller, National, Franklin, Ford, Stevens-Duryea and English Daimler were exhibited at the recent New York shows, and one other foreign make, the Panhard, was not on hand. Perhaps the most interesting feature of most of these big sixes, as they are invariably termed, is that in five out of the six the cylinders are separate castings, the English Daimler being the only exception to the rule.

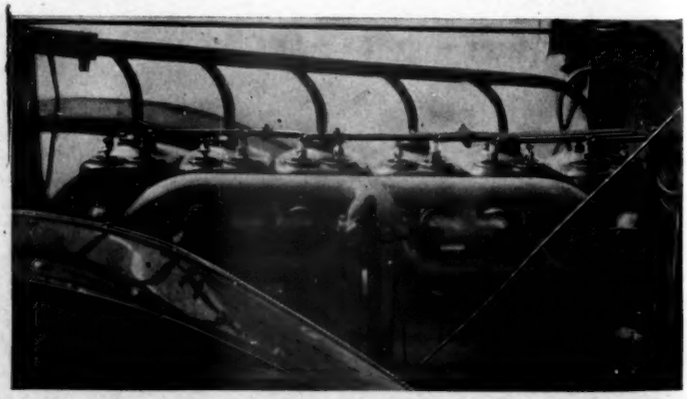
The Stevens-Duryea stands in a class by itself because of the ball bearing crankshaft used, this being the first instance of an American designer using balls for carrying this important motor shaft, although such firms as the Hotchkiss and Mercedes are also using them. The six cylinders in the Stevens motor have 4¾ by 5¼-inch bore and stroke and at normal crankshaft speed 50 horsepower is generated. The crankshaft, cut out of the cold metal and finely ground to a finish, revolves on four races of balls of the Hess-Bright design with the balls 1 1/16-inch in diameter. Two bearings are at the ends and intermediate ones between the second and third and fourth and fifth cylinders. As illustrated, these ball races are very large and are carried entirely in the top part of the crankcase, leaving the lower portion to serve in the capacity of an oil pan. Supplying mixture to six cylinders, so that any range of speed from 150 to 1,000 revolutions per minute is

STEVENS-DURYEA CRANKSHAFT BEARING

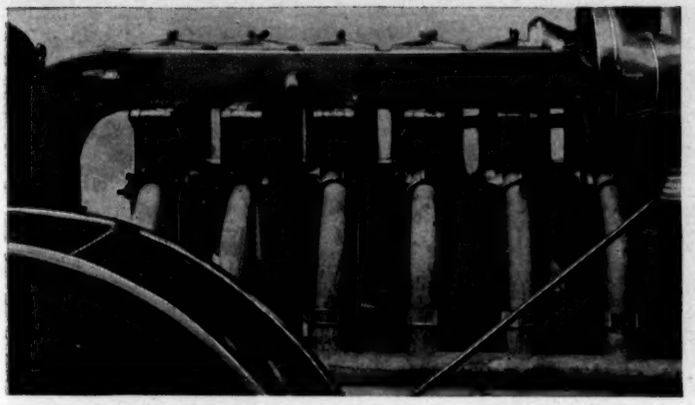




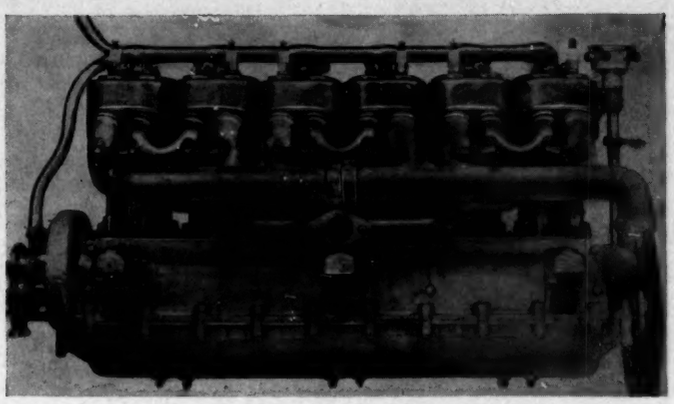
HENRY FORD'S SIX-CYLINDER MOTOR AND GEARSET



STEVENS-DURYEA, SHOWING DOUBLE CARBURETER PIPES



FRAYER-MILLER SIX-CYLINDER MOTOR, COOLED BY AIR BLAST



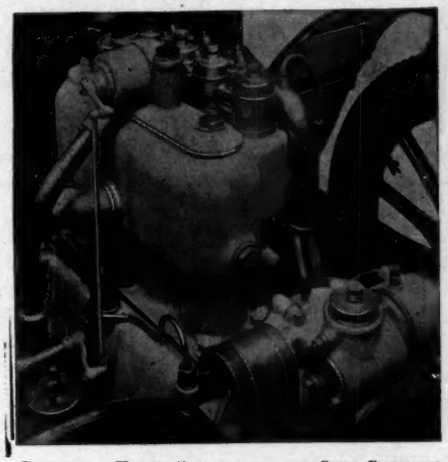
THE NATIONAL 50-60-HORSEPOWER SIX-CYLINDER ENGINE

possible, led the Stevens concern to experiment extensively with carbureters, with the result that a double feed pipe from the mixing chamber has been used. As shown, these pipes are of different diameter, the smaller one with a ⅞-inch bore and the larger one with a diameter inside of 1¼ inches. In each of these pipes near the upper end is a valve and on the axis of each valve is a toothed sector outside of the pipe. The sectors face each other and between them is a vertical rod with teeth on opposite sides for meshing with both the sectors. The teeth of the vertical rod are so placed that the smaller pipe is brought into use first and it supplies mixture for the motor for all speed as high as 5 miles per hour, but for faster traveling than this the vertical rod, on being moved, opens the valve in the larger pipe and it conducts mixture to the motor. In retarding speed the large pipe is first cut out and then the smaller one is gradually cut off. The movement of both valves is through a single finger lever on the steering wheel. In other details the motor follows general Stevens practice, being combined with the gearbox and carried on a three-point suspension.

The National six-cylinder engine with a 50-60-horsepower rating is built along lines similar to those employed in the four cylinder motor, except that all of the parts are correspondingly larger. The crankcase, very pretentious looking, takes its support through three arms on each side and is split horizontally in line with the crankshaft bearings. Each cylinder, a separate integral casting, has a port on the left for accommodating the mechanical valves; the water enters and leaves from the cylinder heads; the commutator is on the top of a vertical shaft at the left and the intake and exhaust pipings are held to each cylinder by a bolt and cross yoke, one end of the yoke resting on the intake and the other on the exhaust pipe. A special framework for conveying the high tension wires to the plugs is used. As heretofore, in its four-cylinder machines the oil tank is carried above the cylinder heads and takes the form of a cigar-shaped tank with both ends pointed like a sharpened pencil.

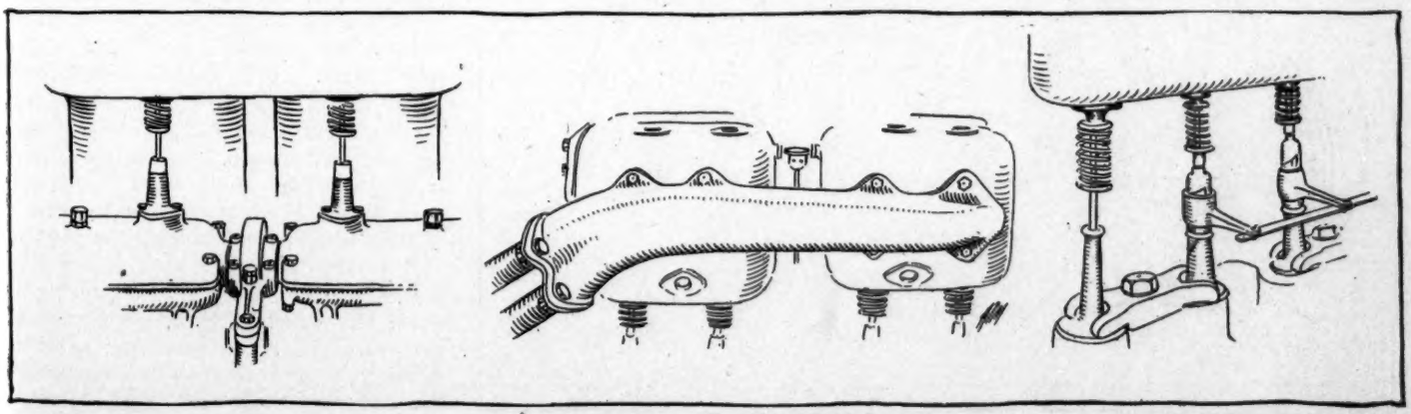
In the Frayer-Miller each cylinder is encased in an aluminum jacket, into which is directed a strong air blast generated by a blower on the front of the motor and conducted to the jackets through a square section pipe passing over the tops of the cylinders. Each cylinder has short spines to aid in the cooling process. For supplying mixture, three pipes lead from the carbureter, one to each two cylinders. These pipes end near the cylinder heads where they unite with short cross pipes which divide the mixture to the two cylinders. A U-shaped yoke secures the pipes to each cylinder. Exhausting is from the opposite side. Valve action and disposition is the same as in the four-cylinder car and the various motor parts are similar except that they are made larger and correspondingly stronger.

Henry Ford carries his six-cylinder motor on an aluminum crankcase which takes its support through a pair of integral arms on each side. Each cylinder has its water jacket and valve port cast integral, the latter on the right side accommodates both the intake and exhaust valve, which are actuated by vertical lift rods, one camshaft sufficing for both. In the center of each cylinder head is a large inspection plate which serves as a head for the waterjacket and through which the jackets can be cleaned. Water from the radiator enters each cylinder at the middle left and exits from on top near the valves. The spark plugs are carried vertically above the intake valves. Simplicity rules supreme in this motor, nothing in the line of excresences being found.



RENAULT FOUR CYLINDERS IN ONE CASTING

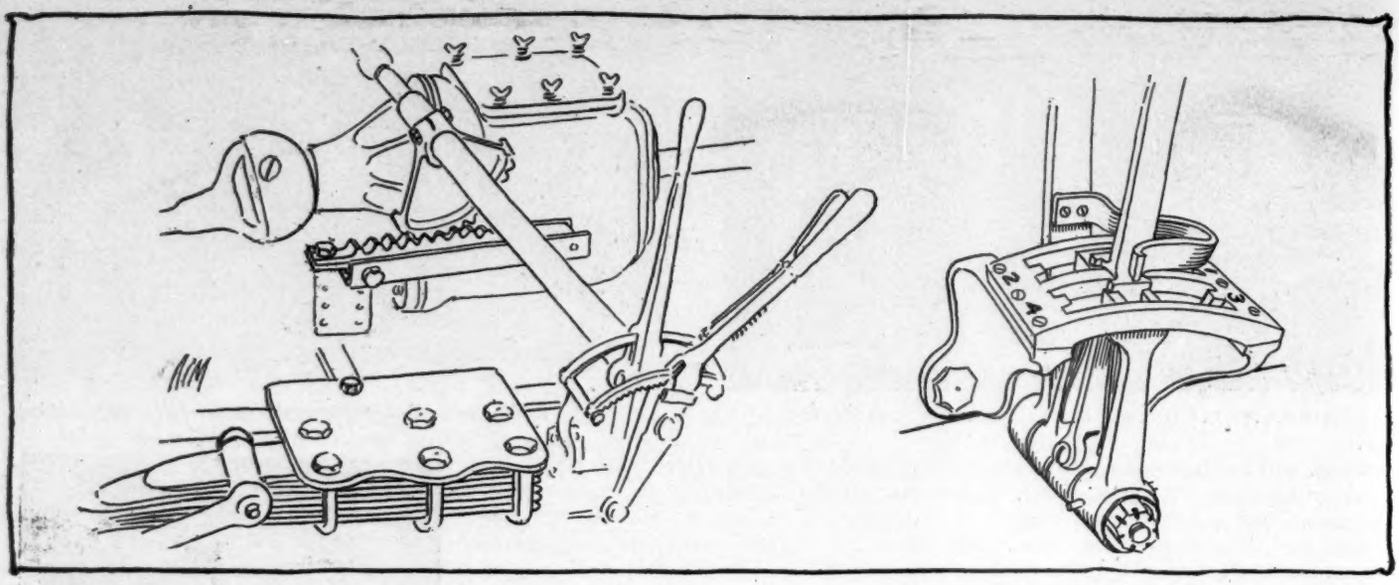
The Franklin six-cylinder air-cooled engine is typical in every detail of the well-known Franklin air-cooled motor. Both



C. G. V. CAMSHAFT COMPARTMENTS

PEUGEOT ARTISTIC EXHAUST PIPING

RENAULT VARIABLE VALVE LIFTERS



BREESE, LAWRENCE & MOULTON'S GEAR SHIFTING DEVICE

ENGLISH DAIMLER REVERSE GEAR SHIFTING LOCK

sets of valves are located in the cylinder heads and are worked through rocker arms; the auxiliary exhaust is used and the intake and exhaust piping is carried close to the cylinder heads.

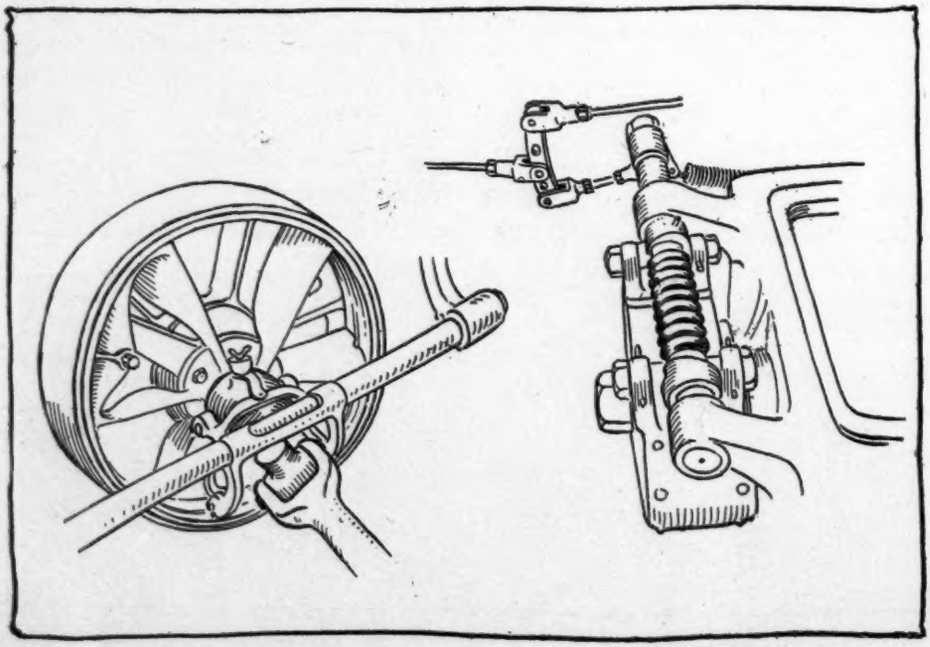
The de Dietrich fan, designed for self-adjustment of the belt, is carried on a vertical post on the front of the crankcase. The fan axle has a vertical hub part, through which the post passes, and for supporting the hub of the fan is a coil spring. As the fan belt slackens, the increasing tension of the spring takes up the slack. On top of the supporting post is a separate oil cup for the fan bearings.

Few makers dare plunge into the field of casting all four cylinders in one piece, but this year can boast of a couple of concerns who have stepped where angels dared to tread. The new Renault is made in this manner and with a rating of 10-14 horsepower is looked upon as an ideal light car motor. The engine is very compact, in fact, small. To accomplish this, automatic inlet valves are used and placed centrally in the heads; the exhausts are worked by lift rods and the throttle is carried close to the intakes, so that there is never a head of mixture between the throttle and the valves. A cross shaft on the front of the motor drives the high tension magneto and the pump. The water connections with the radiator carried behind the motor are simple.

Of cylinder designs there is no end and in many much complexity is a weariness of the eye as well as the hand when it comes to dismounting parts or repairing others. One step in the right direction is the housing of the camshafts in separate compartments on the side of the crankcase. In the C. G. V. car this is quite conspicuous. There is a separate housing for each half of the camshaft and each housing has a removable top, so that the cams can be examined or the shafts removed without interfering with the other parts of the motor. A few other motors make use of separate compartments for the camshafts and although some have openings from these compartments into the crankcase, through which the splash can pass for lubricating the cams, others depend on separate oil systems to care for the cams and the shaft.

The artistic, in cylinder design, is not forgotten in the new Peugeot, which, besides meriting distinction in this regard, has also strong claims for its simplicity throughout. Art stands forth in the exhaust pipes from the pairs of cylinders. One large brass pipe attaches to both pairs of cylinders and is secured to each by a set of four bolts. This pipe is divided into two inner compartments, one serving as a pipe to the exhaust valves for the front cylinder pair and the other serving similarly for the rear cylinders. At the back of the last cylinder this pipe terminates and receives a pair of pipes from the muffler, one for each pair of cylinders. The design leaves that side of the cylinder practically free so that pushrods and other parts are most accessible.

The new Renault motor, like previous other models, has its speed governed not by advancing or retarding the period of ignition but by varying the lift of the inlet valves. In accomplishing this each pushrod is made in two sections with spiral faces where the top part of the rod rests on the lower portion. On the lower part is a short lever which when moved imparts a part revolution to the lower part of the pushrod, thus changing the position of the spiral and so raising or lowering the top part of the rod and bringing it closer to, or farther from, the bottom of the valve stem, and according as it is closer to or farther from the bottom of this stem so will the opening of the valve be accelerated or retarded. Each pushrod



DE DIETRICH DOUBLE FAN-BLADED CLUTCH

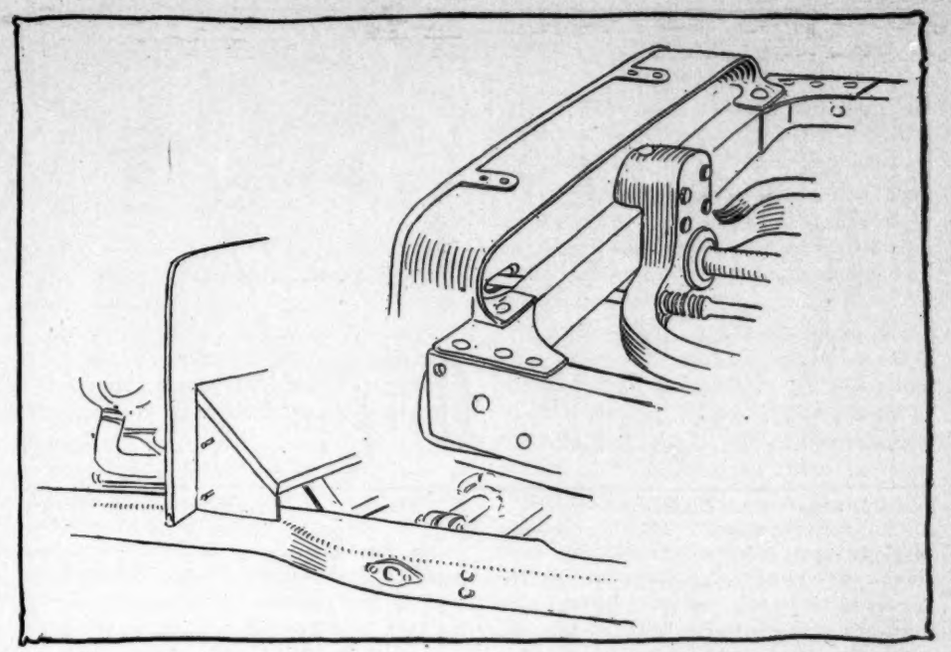
FIAT CAM-OPERATED BAND BRAKE

arm is connected by a horizontal shaft which, in turn, has connections with the steering wheel, permitting the driver to change at will and in an instant the opening of the valves.

Many makers have wrestled with the problem of using fan blades in the flywheel and retaining the cone clutch, but in doing this most of them have sacrificed the clutch diameter very materially and then only succeeded in having the fan part of the spoke extremely short. The de Dietrich car, which is replete with nice construction, makes use of a cone clutch in which the male part is almost equal in diameter to that of the female part, and in both of them the spokes are fan shape, giving the air draughts of a separate fan and retaining the large clutch gripping surface. Not less worthy of note in this car is the general use of universal joints in the driving system. The car is driven through side chains and has the jackshaft and differential contained in the rear part of the gearbox. Between the clutch and gearbox is a shaft with universal joint, adjacent to the gearbox, on this shaft is a second joint, and in the jackshaft on either side of the gearcase is a similar joint, so that false alignment of the case is out of the question should the frame be warped or buckled.

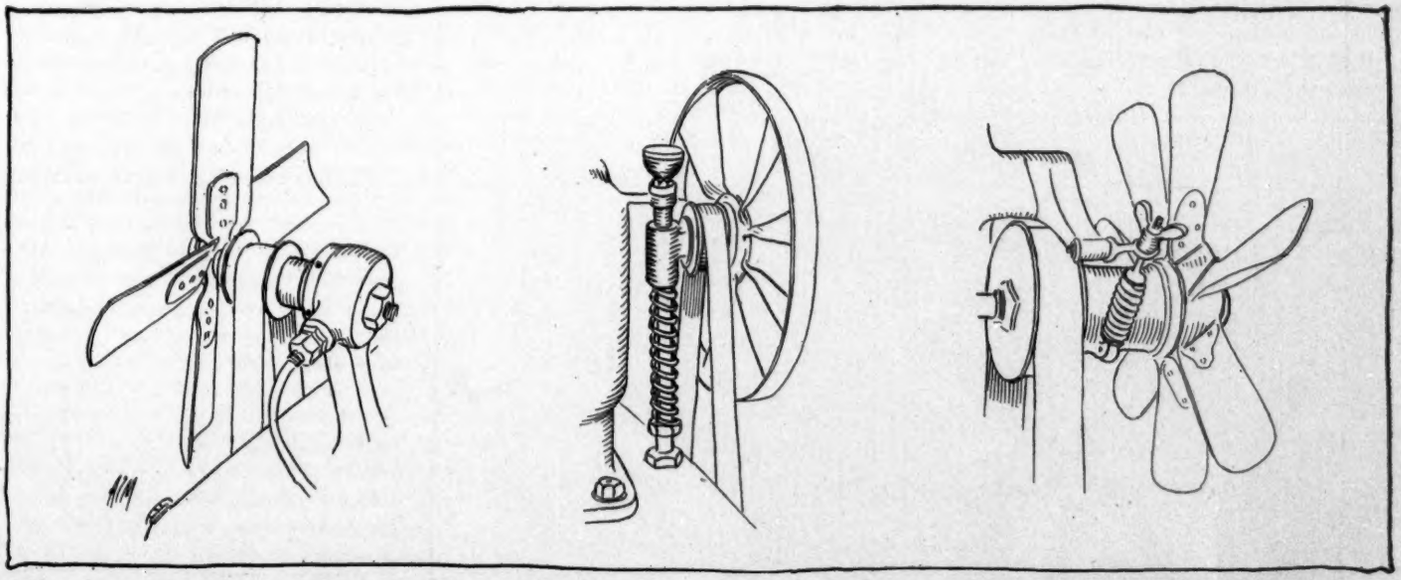
While the Fiat cars are finely finished products from start to finish, in no place is strength sacrificed for appearance, a fact which is most apparent by the method used for strengthening the side pieces of the frame where they are narrowed alongside the motor. Where the curves in the pieces take place the top and bottom leaves of the channel section are left extra wide, so wide that the inside of the frame line alongside the motor is continued for a foot or so after the chambered part is passed. The Fiat brake for regular use is carried on the front end of the countershaft in the gearcase and assumes the form of a friction band operating on a steel drum. The band does not entirely surround the drum and each end has an expansion with eyehole, in which is fitted a cross bolt. On the front end of the gearbox is a pair of arms that carry a cross rod, which supports the band. On this cross rod are spiral cams keyed in position, which operate on the bolts in the expansions in the brake band. To the end of the cross rod is attached the coupling to the pedal so that a part revolution of the rod through the spiral cams applies the band on the drum and a long, heavy coil spring between the cams serves to release the band when the pressure is removed from the pedal.

Some noteworthy efforts at easy fan belt adjustment exist on the Martini and Bollee cars. In the former the fan takes its support in a vertical standard on the front of the crankcase and in this support is a large eccentric bushing that can be changed by a spanner wrench. With the wrench alone it is possible to make adjustment of as much as ¾ inch in the distance between the axis of the fan and that of the crankshaft from which the fan is driven. A separate oil lead from the mechanical lubricator cares for the fan bearings. In the Bollee car the fanshaft is carried on a three-arm bracket, with one arm pivoted on a horizontal bolt in the cylinder head. From one of the other arms is a coil spring, which takes its support from a lug on the cylinder. The tension of the spring is always opposed to the pull of the belt, so that any variations in the belt length are instantly taken up by the spring. The tension of the spring is adjustable through a set screw on the end of the rod, which the spring surrounds, so that when the slack in the belt becomes more than the spring, its tension can be taken up. By changing the



FIAT REINFORCED MAIN FRAME

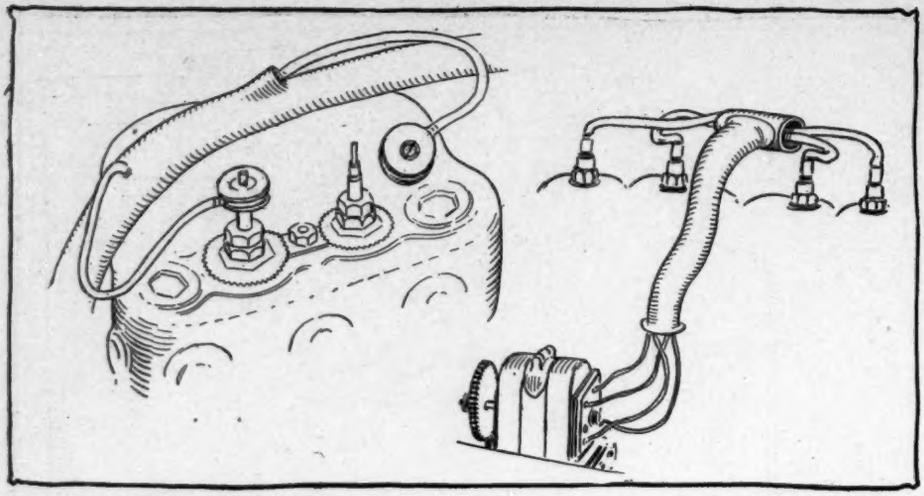
C. G. V. THREE-POINT MOTOR SUPPORT



MARTINI ECCENTRIC BELT ADJUSTER

DE DIETRICH SPRING BELT ADJUSTER

BOLLEE SPRING CONTROLLED FAN BRACKET



RENAULT SPOOL WIRE TERMINALS

DE LEON WIRE SUPPORTS

tension it is possible to take up more slack or make the adjustment of the spring suitable for a shorter belt.

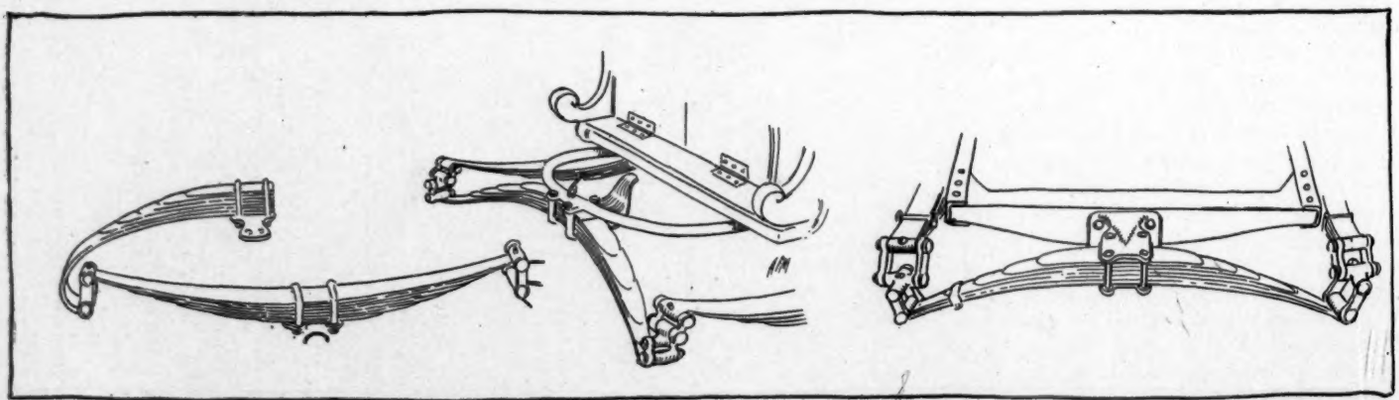
In order to show its faith in new designs the Breese, Lawrence & Moulton concern—the former a son of a New York multi-millionaire—has brought out the Breese car, in which many innovations are found, most important the general use of an aluminum alloy in the metal parts. In changing gears in the sliding gear transmission the side lever at the right carries on its shaft a hanging toothed sector which meshes with a horizontal rack, to which is fastened the shifting rod within the gearbox. Changing gears by this scheme is not only positive, but good changes of position are obtained without long shifting of the lever handle. Instead of adopting full or semi-elliptic springs on the car the makers have used quarter-elliptics, in which one end is clipped to the axle housing and the other is shackled beneath a large rectangular plate that is bolted to the frame side pieces. Three clips are used in binding the springs' leaves to the plate.

One other interesting speed changing set is that in use on the English Daimler cars. These machines are chain-driven and the gearcase is carried close to the back axle. The shaft from the clutch passes through the bottom of the gearbox and beneath the cross jackshaft, and, most peculiar of all, is that the entire gearset is in the rear of the jackshaft, and this shaft, with the differential, is in the front end of the gearbox. This design is used so that a longer chain drive to the back wheels is possible. The changes in speed are made on the selective principle, with the change speed lever working in a three-slot quadrant. In order to provide a locking means a short lever stands beside the change speed lever and on it is a hook-like piece, into which the change speed lever enters when the reverse is in use, the hook acting as a lock, so that with this gear engaged forward speeds cannot be thrown into mesh.

Continental makers as well as American builders have taxed their brains time and again to secure the best form of high tension wire support to the spark plugs and also in the manufacture of wire terminals that will withstand the constant vibration of the motor. The de Leon car is fitted with high tension ignition with current furnished from a gear-driven magneto on the left of the front of the crankcase. The four wires to the spark plugs pass through a copper tubing that extends from the magneto between the pairs of cylinders and at the top branches into a horizontal pipe, from the ends of which issue the wires to the four plugs. Within the tubing the wires are supported, thus placing but little strain on the plugs or the terminals of the magneto.

In the line of wire terminals at the plugs the Renault concern makes use of a spool-like piece which receives the end of the wire. In the center of the spool is an opening in which fits a split spring bushing, with an internal diameter equal to the external diameter of the tip of the spark plug. This spool can be slipped over the head of the plug, and, while the spring in the bushing retains it in position, the flexible connection of the wires to the spools are such as not to cause breaking. It is essential with this style of wire terminal to have plugs ending in a short, vertical, pencil-like piece of a diameter equal to the bore of the spool.

Tendencies even in spring suspension indicate a return to the designs used on many of the highest classed horse vehicles. As a leader the Brasier car, no longer the Richard-Brasier, uses in the rear a three-quarter elliptical spring, in which the short upper part has a large loop where it connects with the shackle on the end of the lower part. The design allows of shorter side frame pieces and permits the rear of the body being carried snugly over the back axle. In a landaulet made by another foreign house this type of spring has been exaggerated until it in reality becomes the well-known C spring so familiar on horse cabs. The Spyker car, with its claims for dustlessness, uses a rear platform suspension in which the cross spring is at the rear end is centrally clipped to a semi-circular piece projecting from the rear cross part of the frame. Double shackles are used in uniting the cross part with the side springs. The most apparent advantage of this scheme of carrying the platform is that the side springs can be made very long without the body being unduly elongated and, should occasion demand it, a luggage bag or trunk could be conveniently housed on the semi-circular piece. In the Rochet-Schneider a similar design to the Spyker is used, excepting in that the semi-circular part is replaced by a short bracket bolted to the rear side of the back cross part of the chassis frame. Bolting the spring to the frame this way gives a slightly lower center of gravity and permits of longer side springs than where the cross part is clipped beneath the frame cross piece.



BRASIER THREE-QUARTER SPRING

SPYKER'S PLATFORM SPRING ATTACHMENT

ROCHET-SCHNEIDER PLATFORM SPRING SUPPORT

Benjamin Changes—C. A. Benjamin has resigned his position as sales manager of the Franklin company to ally himself with the Babcock electric people.

Adds Two Lines—Ralph Temple, of Chicago, while at New York last week added the Hotchkiss and de Dietrich to his line, which has in it the Panhard, Reo, Premier and National.

Thery in Trade—Leon Thery, retired champion driver of the world, has cut loose from the Richard-Brasier people and has formed a company for the purpose of manufacturing a car to be called the Thery.

Enlarging—The plant of the Burtt Mfg. Co., of Kalamazoo, Mich., manufacturer of the Cannon automobile, will be enlarged this spring. About $50,000 will be put into new buildings and machinery. The work will be begun about March 1.

Gump on Coast—The A. W. Gump Automobile Co., of Los Angeles, Cal., has been organized by the old bicycle manufacturer of that name at 1118-1120 South Main street. Mr. Gump was identified with the late R. Philip Gormully and Thomas B. Jeffery in the manufacture of Ideal bicycles at Dayton, O., in 1895.

Ashtabula in It—The Palmer Mfg. Co., of Ashtabula, O., will open a sales office in Cleveland. The company has just been formed by H. R. Palmer and G. Cartwright, of Cleveland; Richard Conrad, J. J. Farrell and A. P. Fisk, of Ashtabula. The company will have its factory in Ashtabula and will manufacture gasoline cars. G. Cartwright, general sales manager, will be located in Cleveland.

Tire Test—The Hartford Rubber Works Co. has a most efficient way of testing its tires. A car weighing 4,050 pounds without driver is equipped with the tires to be tested. To be sure that this trial will be thorough pig lead is piled on the rear platform to make the load heavier. Then the driver is sent out on the road with instructions to drive at least 100 miles a day. In this way the company finds out just how much its tires will stand.

Bracket Novelty—The Auto Accessories Mfg. Co., of Detroit, Mich., is marketing a novelty in its automatic headlight bracket, a description of which was inadvertently omitted from the New York show issue of Motor Age. The bracket is for controlling the acetylene lights on an automobile from the steering wheel, so the rays of light follow the course of the road when the car is turning a corner. Among the many accessories the concern carries could be noted goggles, caps, engine cases, rain coats, automobile dusters, parabola lamps and reflectors.

Houpt Garage—Among all the magnificent garages going up in New York city the Thomas place, to be erected by Harry Houpt, is expected to rank among the finest.

Paris Date in Doubt—It is denied in Paris that the next French show will be held in October instead of December as usual. No definite action has been taken as yet, it is said. The rumor is credited to the English.

Ullmann Out—Henry J. Ullmann has disposed of his interest in the Pardee-Ullmann Co., Chicago agents for the Packard and Franklin, his share being purchased by Ernest Hamill. The name of the firm will be changed to the Pardee-Hamill Co.

Open in Style—The official opening of the establishment of the Foss-Hughes Motor Car Co., Philadelphia, delayed until after the New York show, took place last Monday night and will continue throughout the week. The cream of the Cadillac, Pierce-Arrow and Baker electric exhibits at garden and armory was displayed, the outfit being scheduled to move on to Chicago early next week.

Merely Temporary—The Matheson Motor Car Co. has established temporary quarters at 1619 Broadway which it will occupy until its new garage is completed. Although the plans have been completed for a garage to cost approximately $500,000 no site has as yet been selected. The entire output will be handled through a selling agency to be known as the Matheson Co., of New York. Prominent in this are Charles A. Singer, of New York, and Henry U. Palmer, of Brooklyn, both of whom are well known in the trade.

G & J Recruit—George Ludington has been named as the new superintendent of the G & J tire factory at Indianapolis.

New School—Philadelphia's new automobile college, the National Auto School, at Carlisle and Oxford streets, opened with a large class of students and a strong force of instructors last week.

Get the Bliss—Douglas Andrews & Co., who contracted to dispose of the output of the Berkshire Automobile Co., has added to their line by contracting to handle all the cars that will be turned out this year by the E. W. Bliss Co., of Brooklyn.

Haynes Change—Frank J. Fanning, ex-manager of the Chicago branch of the Electric Vehicle Co., has succeeded V. E. Minnich as sales manager of the Haynes Automobile Co., of Kokomo, Ind., Mr. Minnich having gone with the National Cash Register Co.

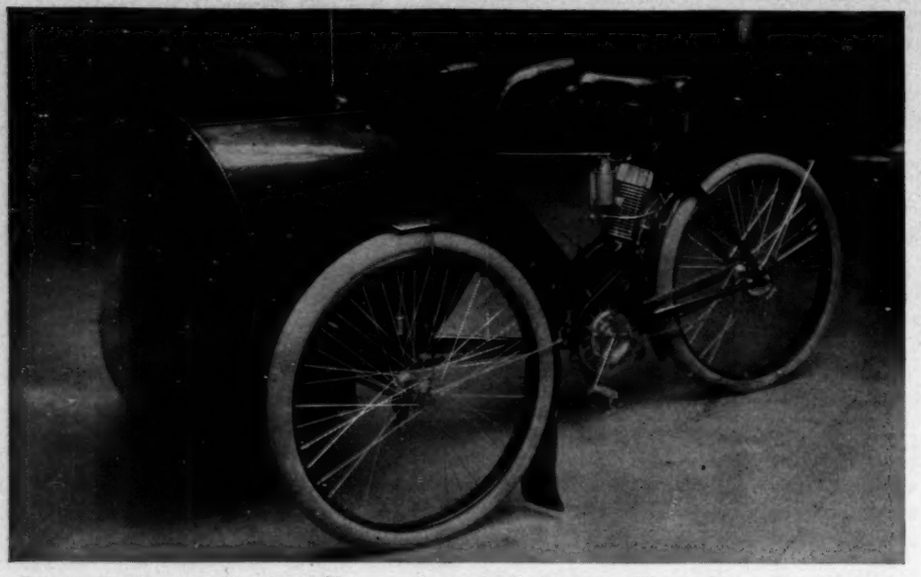
Another for Charley—M. Charley, the Mercedes man, is preparing to open another magnificent establishment in Paris, having secured land for a building that will comprise show room, repair depot and garage. His old place will be maintained for strictly show and business purposes.

Birdsall Changes—E. T. Birdsall has left the Decauville Automobile Co., of New York. He has brought out a six-cylinder motor which he is seriously contemplating placing on the market, which is the reason given for his resigning his position as manager of the Gotham concern to take up the new venture.

New de Dion—Reports from France state the de Dion people are putting out a new model of the 15-horsepower four-cylinder car which is some lighter than the one of 1905. One of the leading changes is that in the new model the carbureter only is throttled instead of the exhaust. It is made in two lengths, the shorter one allowing of the use of a side-entrance body. It is called the chassis mixte.

THOMAS GARAGE IN NEW YORK CITY, DESIGNED FOR HARRY HOUPT

FROM THE FOUR WINDS



INDIAN TRI-CAR AND DELIVERY VEHICLE, SHOWING PROGRESS IN MOTOR CYCLE CONSTRUCTION

New Job for Caillois—Caillois, who drove for Brasier in the Bennett, will probably be at the wheel of a Hotchkiss this year, gossip from Paris states.

New Pope Racers—The Pope people are reported to be building three new racers for the big road events this year. It is said the cylinders on the machines will be even larger than those used on the Lancia Fiat. Bert Dingley, now in San Francisco working for a coast firm, will undoubtedly be one of the drivers.

Going Into New Territory—State Highway Commissionear Earle will hold a 2-day good roads institute at Cadillac, Mich., February 9 and 10. The state highway department has already covered half of the upper peninsula of the state and the upper half of the lower peninsula in its good road crusade and will now attack the lower half of the lower peninsula.

Speedway Subscriptions—During the New York show a number of subscriptions were secured for the proposed Bennington speedway, George W. Young putting his name down for $10,000, W. Gould Brokaw, John Jacob Astor, N. D. Lancaster, R. S. Kimball, R. S. Kunkel, Washington E. Roebling and John L. Kuser $1,000 each, John A. Kunkel and Emerson Brooks $500 each and Elliott C. Lee $100.

Toronto Motor Show—The International Motor Exhibition is promoting a show in Granite rink, Toronto, from March 31 to April 7 for automobiles, accessories and motor boats. The exhibition will be conducted along similar lines to the more important exhibitions in the United States. The Toronto Automobile Club has promised the scheme its hearty coöperation. A thorough representation will be made of all the lines of automobiles represented in Canada, which includes the leading American and foreign, as well as Canadian cars. Additional space is offered at the rate of 75 cents per square foot to manufacturers of automobile accessories, motor boats, marine engines and sporting goods, to the extent of about 5,000 square feet, which completes the capacity of the buildings—24,000 square feet in all. Space will be allotted in the order applications are received.

Yellow Jack Gone—To allay any possible fear of prospective visitors to Cuba at the time of the Havana automobile tournament, the Cuban government has announced, through its consul at Philadelphia, that all traces of yellow fever and other contagious diseases have been eradicated from the infant republic.

Course Changed—Austria won the international motor cycle championship race last year and it was expected that the next contest would be held over a course near Vienna. It has been found necessary to change these plans, however, and it is now announced that the cup will be defended over a course in south Bohemia, which will also be used for the Austrian eliminating trials June 3 and 4.

Still Talk Tag—The commissioners of Fairmount park, Philadelphia, who have always been a law unto themselves, have asked for and received an opinion from their solicitor, George Wharton Pepper, as to whether the new state automobile law of 1905, which went into operation January 1, has any bearing upon the park motor car regulations. Mr. Pepper's decision is that it has not. He says that an act of assembly does not repeal a local or special act unless it is clear that such repeal was intended. "The act of April 19, 1905," he says, "cannot be construed to repeal the right granted previously to the commission to control the rate of speed within the park." No orders have been issued to the guards, however, to apprehend automobilists who prefer to drive their cars according to the state regulations, and the latter will remain in force until the supreme court hands down its decision on the supersedeas restraining the city authorities from enforcing the local ordinance.

Pinch Record—According to the report of the chief of police of Evanston, the Chicago suburb brought into the automobile limelight through the tire-shooting escapade of Officer Johnston, there were 178 scorchers arrested and fined last year for hiking through the classic streets of the town at too great a speed for the comfort of the citizens.

After Cup Thief—Those who are rather skeptical regarding the genuineness of the theft of the Pyrenees cup at the late Olympia show have had qualms of conscience since the London police announced, or are said to have announced, that they have succeeded in making one arrest in connection with that affair. So, evidently, the police think it genuine and it is pretty hard to bluff the London detective.

A. G. Pays the Freight—It is estimated that A. G. Vanderbilt spent $30,000 for the 250-horsepower speed monster now at Ormond, but this is going to be only a starter, for the young millionaire intends to build all his own automobiles hereafter. He is reported to have secured the lease of a building near Herald square, New York, for which he is to pay $3,000 a year. Then he has hired seven mechanics at $2,400 a year each, while Francois Richard, his designer, pulls down $3,600 for 12 months for 3 years. In addition to this there is Sartori, whose annual stipend can hardly be called meager.

Motor Gospel Wagons—The inability to get into one building the huge crowds which will undoubtedly attend the Torrey-Alexander mission, which will open in Philadelphia on February 4, has made it necessary that auxiliary meetings shall be held in various sections of the city, particularly in the Tenderloin. To facilitate this work, a number of automobile gospel wagons will be prepared—each containing a small organ and sufficient room for several speakers and singers. These cars will go about from place to place, meetings being held at times and points previously advertised.

Chauffeurs Organize—With a view to forestalling drastic legislation governing the regulation of automobiles, but with the announced intention of maintaining proper rules governing the use and operation of the machines and later for the regulation of wages, a number of automobile drivers of Denver have organized the Auto Mechanics' Club, and have applied to the secretary of state for articles of incorporation. Behind the project are F. B. Chamberlin, S. E. Norton and E. S. Crawford, who are professional automobile drivers. After the organization is placed upon a firm footing and its membership is built up, the question of a scale of prices for drivers will likely be taken up. The club may seek affiliation with the other labor

organizations of the city. The promoters of the organization hope to get enough public support to build a club house in Denver.

Knipper a Driver—William Knipper, on the car with Lytle in the last Bennett race and who drove a demonstrating machine during the New York show for the Thomas people, asserts he will handle the wheel of a big Thomas racer next summer.

Took No Chances—Percy Pierce had the Glidden trophy at New York, but he took no chances exhibiting it at the show, remembering the fate of the Pyrenees cup, which was stolen from the Olympia show. The Glidden trophy was on exhibition at Tiffany's during the week.

Indian Tri-Car—The Indian motor cycle has progressed or developed into the Indian tri-car and delivery vehicle. The latter attracts attention by its large drum-shaped carrying chamber between the two front wheels. A single wheel at the rear, where the driver sits, does the driving and has the motor closely connected to it. Speeds as high as 25 miles an hour are possible, and the load-carrying feature is considerable.

Framing Good Roads Bill—The Lucas County Good Roads Association, of Ohio, is framing a good roads bill to be presented before this session of the legislature. Captain J. W. Kerr, one of the county commissioners, is foremost in framing the new bill. Toledo and Lucas county will be represented at the state convention by County Commissioner Kerr, C. W. Shoemaker, T. H. Deardorf, W. G. Alexander, R. A. Taylor, Frank Spangler, J. H. Crawford, Thomas Crofts, F. J. Norris and C. S. Ashley.

New Thing—Automobile retail stores will be a Quaker city novelty if the present plans of the Philadelphia Portable Stove Co. go through. The company was organized under a New Jersey charter last week, with a capital of $150,000. H. A. Illman, Frank L. Richardson and Wilfred B. Wolcott were the incorporators.

Belgian Show—The Hall du Cinquantenaire has been selected for the Belgian show which opened in Brussels January 15 and close on the 24th. One of the stands has been taken by the Automobile Club of Namur Luxembourg, which has put up a red-tiled villa after the English style, which is being used as the club's headquarters.

Peculiar Mishap—F. T. Sholes, president of the Cleveland Automobile Club, is laid up as a result of a peculiar accident. While cranking the engine of his car his left foot slipped, throwing his entire weight upon his right ankle, the result being that it twisted until the larger bone snapped. It has been necessary to put the foot in a plaster cast and Mr. Sholes is still confined to his home.

New One—The Automobile Club of Central Pennsylvania has been organized by motorists of Lycoming, Montour, Columbia, Northumberland, Snyder and Union counties. The following officers were elected: President, Fred A. Godcharles, of Milton; vice-presidents, Charles D. Wolf, Williamsport; J. R. Berwick, Berwick; W. W. Welliver, Danville; I. M. Higbee, Lewisburg; Charles W. Clement, Sunbury; secretary, Frank R. Slifer, Milton; treasurer, Clyde B. Kaufman, Williamsport.

Two Airships Sold—Carl Fisher, of Indianapolis, and Major C. J. S. Miller, of Franklin, Pa., bought airships at the A. C. A. show. The Leo Stevens III was purchased by Fisher, while Miller ordered a duplicate.

King in Mixup—King Alfonso of Spain met with an accident recently while out driving on the Prade road, his car running into a rut, which broke the axle and otherwise damaged the machine. The king escaped injury.

Glidden Still Going—When last heard from Charles J. Glidden was at the most northwesterly point in India, having negotiated 2,474 miles on his second tour of the world, which gives him a total mileage of 27,574 miles since starting his globe-girdling stunt.

Punished for Carelessness—Laborers responsible for the accident to ex-Queen Margherita of Italy have been punished for their carelessness in leaving a pile of stones on the road near Aosta last December, into which ran the motor car belonging to the queen. Three of the men got 18 weeks in jail and the other one 11 weeks, which will make them more careful.

CURRENT AMERICAN AUTOMOBILE PATENTS

Metal Tire Cover—No. 806,520, dated December 5; to Henry L. Canno, Dingman Township, Pike County, Pa.—This tire cover is of a chain variety and in it are four parts—a tread portion, of link armor, very thick, with the links close together; on each side of this and connected therewith by a dozen cross links is a single chain ring fitting against the side of the tire, and to these rings are attached four leather straps which encircle the wheel rim and hold the tire cover in position.

Tire Tread—No. 808,074, dated December 26; to Jean C. Dufour, Charenton, France—The tread referred to is intended to prevent puncturing of the tire and also skidding. A leather casing vulcanized in place encloses the tire and outside of this is placed a heavy leather tread piece, which is riveted in place and has its edges turned under, thereby giving a flattened effect to the tread. The rivets used have large round heads and flat ends between the rubber tire casing and the leather covering.

Storm Apron—No. 808,208, dated December 26; to Sidney B. Laune and Charles M. Shelden, Woodward, Okla.—In this patent, which is a storm apron adapted to enclose the front portion of the canopy top of an automobile to protect the driver and others in the front seat, the inventors carry a rotable spring roller on the front bow pieces of the top and wound around this in window-blind fashion is the storm front or apron. All that is necessary when drawing the apron down is to give it a slight pull and then button it to places on the dash. A ratchet wheel is used in raising it.

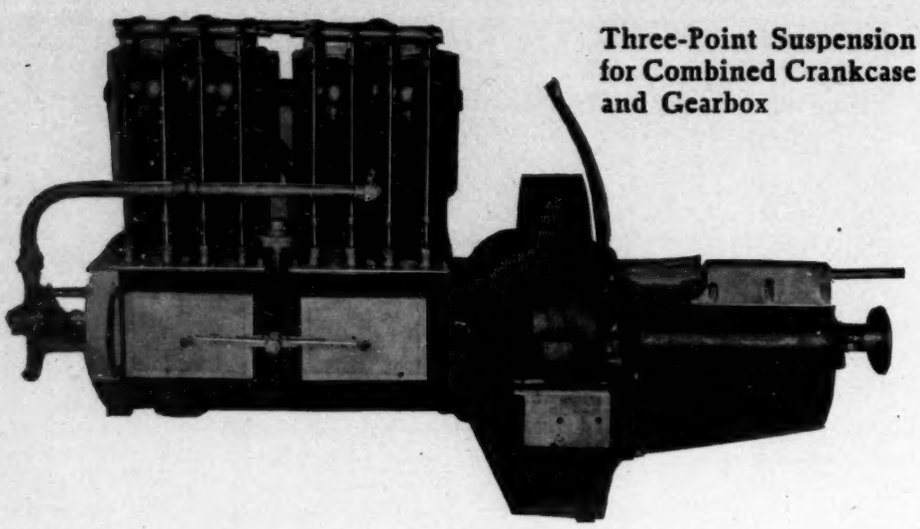
Reversible Carbureter—No. 806,434, dated December 5; to George M. Schebler, Indianapolis, Ind.—This invention relates to the fitting of the Schebler carbureter, with interchangeable unions and spring-controlled air valve, so that, when desired, the air can enter one opening and passing the spraying nozzle pass to the motor through the other opening, or the air can enter through the opening previously connected to the motor and the mixture to the motor pass through the opening which formerly admitted the outside air. This interchangeability of air inlet and motor exit openings is designed so that the carbureter will readily adapt itself to different styles of motors.

Semi-Solid Tire—No. 805,434, dated November 28; to Lemuel E. Allen and William J. Poyser, Canton, O.—The tire described has a cross section resembling the letter D, with the vertical part slightly shortened and the sides somewhat bulged. A clincher type of rim secures it to the wheel and a central annular space in the base of the tire, in which are located large headscrews, aids in holding the tire in place. In that portion of the tire in which the air tube is carried in a pneumatic, are two small air spaces, connected with the annular groove in the center of the tire base. In the tread of the tire are embedded three arching screens made from iron or metal, intended to protect the air spaces from puncturing.

Cushioned Tire—No. 808,426, dated December 5; to Charles W. Adsit, Owatonna, Minn.—In this tire, which is of the combination type, a pair of spring tubes similar in shape to an ordinary pneumatic tire and one within the other is placed in position on the wheel rim, and enclosing these spring tubes is a heavy canvas or rubber covering, giving the tire the appearance of a pneumatic. Within the steel tubing the wooden rim of the wheel occupies practically three-quarters of the space, being made rope-like to fit the interior. Between the top of the rim thus formed and the tread of the tire is a circular air space, in which the air is contained at atmospheric pressure. The tire is attached to the rim through cross bolts passing through the steel tube, the outer rubber or canvas casing and the rim itself.

THE DORRIS—A NEW ST. LOUIS CAR

Three-Point Suspension for Combined Crankcase and Gearbox



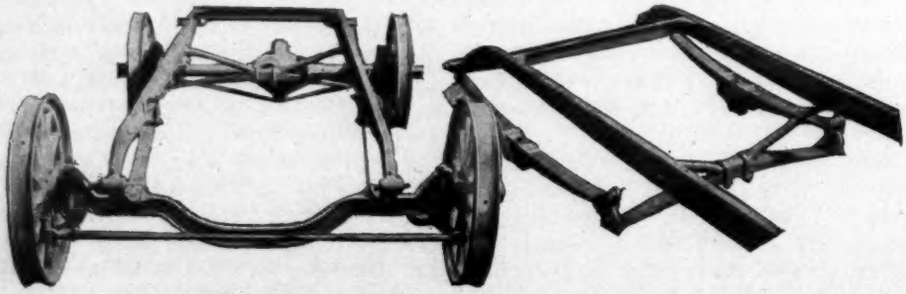
DORRIS COMBINED MOTOR, CLUTCH AND GEARBOX

A NEW CAR by an old maker can be aptly applied to the Dorris, a St. Louis production built by the Dorris Motor Car Co. after the design of G. P. Dorris, vice-president of the concern, and who for 10 years has been closely identified with automobile building in the Missouri metropolis. As might be anticipated, the machine is fashioned largely along lines previously brought out by this designer, so that the principles involved in the car's layout are not untried, but rather for a decade have been undergoing continuous tests in all parts of the country. In summing up the machine, which is rated at 30 horsepower, it is sufficient to mention that the engine is of the vertical four-cylinder four-cycle type with the valves in the heads, and flexible connection with the rear wheels is through a multiple disk clutch running in oil. Changes in speed are through a sliding gear set and final power transmission is through a jointed shaft and live rear axle.

In building the Dorris the materials used in the various moving parts of the machine and in all stationary parts where strain comes have been selected from the metals most suited for such purposes. Sufficient work has been bestowed on these parts to render them fit for their intended service. The crankshaft, a chrome steel drop forging, works in three long bronze bearings, the bronze coming from the Cramp concern. The flywheel bushings are 5 inches long, whereas the center and front are 2¾ inches in length. The camshaft, made with the cams integral so that misalignment is impossible except in case of wear, is machined throughout, has a ⅞-inch diameter and turns on three long bronze bearings. Both shafts in the gear set are of hardened steel ground to a finish and revolve on bronze bearings at either ends. The shafts have a diameter of 1¼ inches. Connecting rods of I-section drop forgings have bronze bushings at the crankshaft end measuring 2⅜ inches in length and with a bearing diameter of 1 11-16 inches. The wrist pins of tool steel, hardened and ground, are made with a ½-inch hole in the center to lessen weight. They are clamped to the connecting rod, thus giving them bearings in the piston at either end 1½ inches in length. So the story of metals used and finish employed could be continued. The front axle of I-section is centrally dropped and has Timken roller bearings at each end for carrying the road wheels; the driveshafts in the rear axle are made from nickel steel and revolve on Timken bearings; all gears in the gearcase are of nickel steel case hardened and are of six pith and 1 inch wide.

Road wheels are made of 1½-inch second growth hickory, have a diameter of 32 inches and carry 4-inch tires. The cylinders inside are machined, bored and ground; the pistons are ground and so are the four eccentric lap-jointed piston rings. The valves, interchangeable throughout, have the heads and stems made integral, with the former suitably beveled. Nickel steel is used in them.

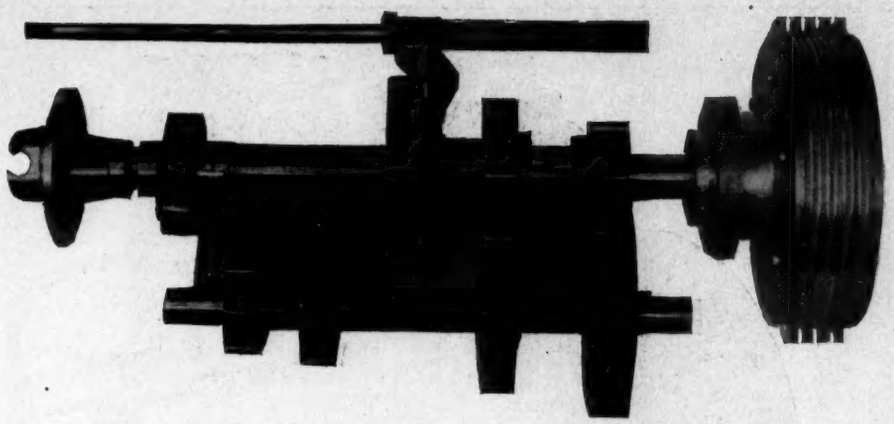
The Dorris engine, clutch and gear set are each encased in separate chambers and the three all bolted together at their adjacent ends and the combined three-part casing carried on a three-point suspension. This is not new with the designer. The side section of the motor reveals that the three points of support are as follows: The front of the motor at A is carried by a pair of cross pieces connecting with the frame side pieces, one piece being arched upward and the other downward. At each side of the flywheel below the point marked H are integral arms on the flywheel housing that extend and have their outer ends resting on the frame pieces. These three are the only supports for the entire power generating and transmitting parts. In the combined casing for the three parts, the aluminum crankcase C is bored at the front ends to carry the crank and camshaft bearings. In the rear it is entirely open, but takes an end piece D securely bolted in position and in which are carried the bearings of the crank and camshafts. To this end of the crankcase is bolted a housing part E enclosing the front part of the flywheel H. To the rear of this is a housing piece G bolted to the outside of the casing E and forming the front end of the gear box F. To this piece is bolted the gear box with its rear end integral with the casting part. On top of it is an inspection piece H which further serves in enclosing the interlocking rod K which prevents the shifting of gears with the clutch engaged. The entire casing is thus a built-up unit with the several parts bolted together. The motor proper consists of four cylinders cast in pairs, with each pair having its cylinder walls, cylinder-heads and waterjackets cast in one piece. The valves are located side by side in the cylinder-heads and are carried in cages screwed into the cylinders. In removing a valve it is first necessary to remove the rod on which the rocking arm opening the valves is pivoted, after which a spanner wrench is needed in taking out the cage. In valve opening the usual vertical pushrods with rollers bearing on the cams, and guides in the top of the crankcase to prevent turning are used. The rocker arm for each valve is pivoted in the center and has expanded end portions for resting on the valve stem and the end of the pushrod. The use of a coil spring surrounding the bottom part of the push rods retains the rod roller on the cam at all times and obviates striking noises. On the left of the crankcase are two large inspection plates, one for each pair of cylinders, and both secured by a long yoke held to the case by a screw between the cylinder pairs. On the top of each cylinder is a double arm guide piece L bolted to the cylinder-heads and with eyeholes for each push rod. On the left of the motor and carried by brace pieces from the end cylinders is a box-like



DORRIS CHASSIS FRAME AND REAR SPRING SUSPENSION

mechanical oiler with four feeds communicating with the cylinders. Each feed has an individual pump driven by an eccentric shaft from the camshaft and which operates an enclosed toothed ratchet within the oil box. A bleeder test is fitted to each feed. Provision is made within the crankcase for the lubricant from the end crankshaft bearings returning to the bottom of the crankcase through oil ways M which lead from expansions in the bearing cages. Within these expansions the crankshaft has ring flanges N for preventing the oil flowing out of the end of the bearing.

Both inlet and exhaust pipings are on the right and placed inside of the oiler so that the heat from the exhaust pipes serves in retaining the oil at a uniform temperature. Placing the exhaust valves at the outside of the cylinder pairs results in the exhaust pipings being carried outside of the intakes, thus preventing the condensation of the mixture in the intake pipes in cold weather. The carbureter has the float in a separate chamber and has its throttle in the form of a horizontal piston, regulated from the steering wheel. An auxiliary air inlet is furnished. Ignition is by jump spark and the plugs are screwed horizontally into the cylinder sides on the left. The current, taken from either a 6-volt storage battery or a set of dry cells, is high tensioned through a four-unit vibrator coil carried on the dash and commutated by a French timer carried on the top of a short vertical shaft on the left side located between the cylinder pairs. The commutator is driven by gears off the camshaft. In cooling the motor a radiator of the horizontal tube finned type with water progressing from the top to the bottom through four strands of the horizontal tubes at a time is used. From the radiator base a double-gear direct-driven pump forces the water to the bottom of the jackets on cylinder pairs to the radiator top. Using a large flywheel and making the spokes like propeller blades obviates the necessity of using a cooling fan in the rear of the radiator.



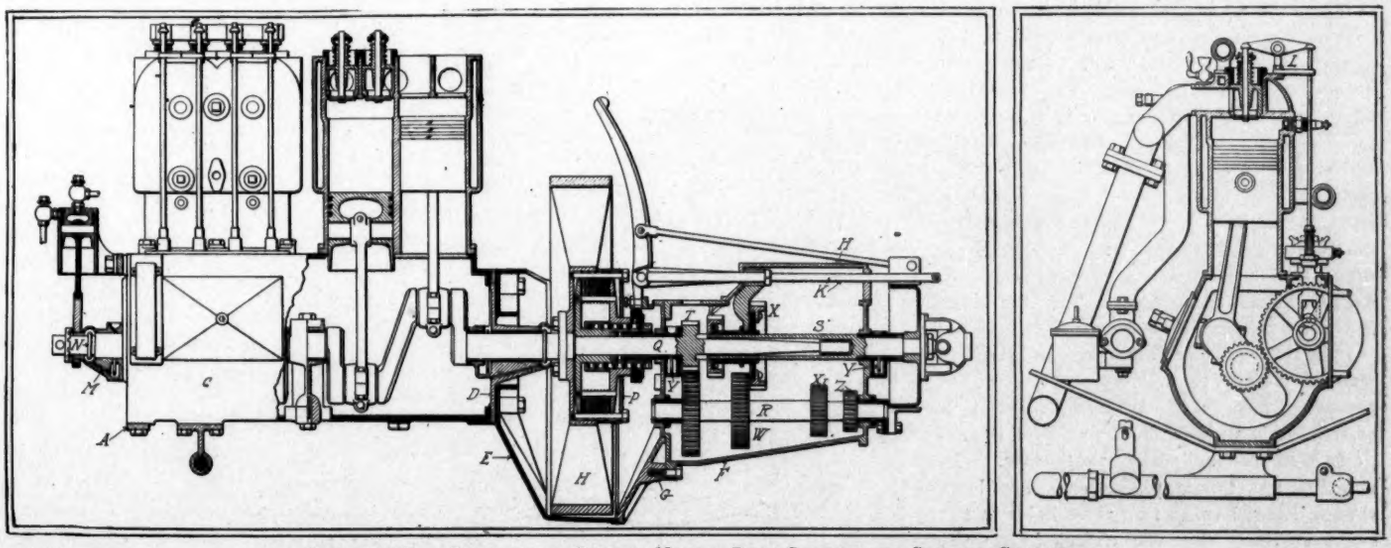
DORRIS THREE-SPEED SLIDING GEARSET AND DISK CLUTCH

In the disk clutch nine bronze disks 1/8 inch thick and 8⅝ inches in diameter are secured to the flywheel by bolts, each disk having three lugs on its outer edge through which the bolts pass. Alternating with these disks are eight others of the same diameter and made from steel plate 3-32 inch thick. These disks are supplemented by two heavy cast iron disks at either side of the combined sets and are secured to the shaft to the gear box by six lugs on each disk at its inner side. Through these lugs are as many bolts for securing the disks to the shaft. Engagement is by spring with the usual ball end thrust. The plate part P enclosing the rear part of the clutch forms together with the flywheel casing an oil-tight chamber for the clutch to operate in.

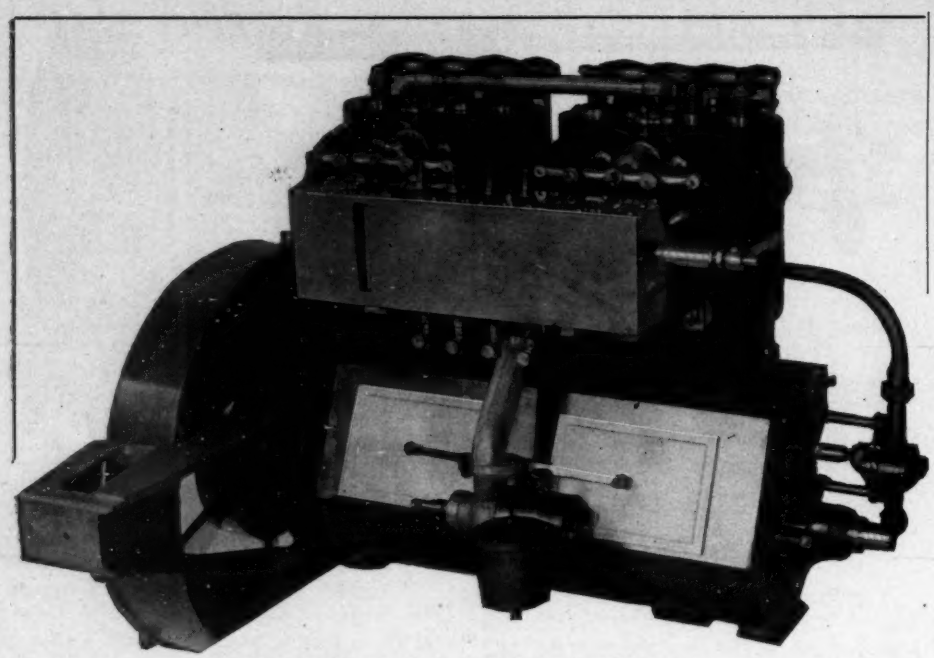
The gearcase is designed so that the mainshaft Q, carrying the clutch, is above the countershaft R. A strength precaution is noted in having the shaft Q extend through the central bore in the shaft S almost to the rear end of the case. In driving direct the shafts Q and S are united through the gears T and W, which have dental teeth on their opposing sides. On the remaining two forward speeds, the sliding gears W and X are meshed with corresponding gears W and X1 on the shaft R and in reversing an idler is placed between the gears X and Z. Ring oilers Y are used on both mainshaft bearings. The propeller shaft carries two full universal sliding joints, which are made of drop forged pieces hardened and ground and which are constantly working in grease-packed cases. The shaft itself is square at one end, which forms a telescope with the joint to take care of the rise and fall in the frame occasioned by spring vibrations.

One regular brake is carried on the propeller shaft at the rear of the gearcase and consists of a friction band lined with camel's hair fabric. It is pedal-applied. The two emergency brakes, when applied, release the clutch and take the form of camel's hair-covered steel expanding shoes operating through the toggle joint within steel drums carried on the rear wheel hubs. These are operated by side lever, located beside the change speed lever.

Car control centers about a hand wheel on an inclined steering column, the column connecting through a pinion and crosswise rack, which is in turn connected through two ball and socket joints to a lengthened ball and steering knuckle arm. On the column immediately beneath the hand wheel and working in separate quadrants



SIDE AND END SECTIONS OF DORRIS MOTOR, DISK CLUTCH AND SLIDING GEARSET



DORRIS MOTOR, SHOWING OILER IN POSITION

at the left are spark and throttle finger levers. The clutch is released by pedal. A hollow metal dash houses the spark coil and other necessaries. All bodies are built by the company. The front seats are made individual, the wide and roomy tonneau is made detachable, entrances are wide, spring suspension is through a pair of front elliptics and a rear platform combination in which the cross piece placed at the front ends of the side pieces takes its load from a slightly dropped cross member connecting the frame pieces. This construction gives a pulling instead of pushing action to the spring. The main frame is of pressed steel construction, with the side pieces straight from end to end and a subframe not used because of the peculiar motor support. The bonnet is plain and triple-hinged, opening at either side. The fenders and running boards are conventional and upholstering and general finish is in keeping with modern tendencies.

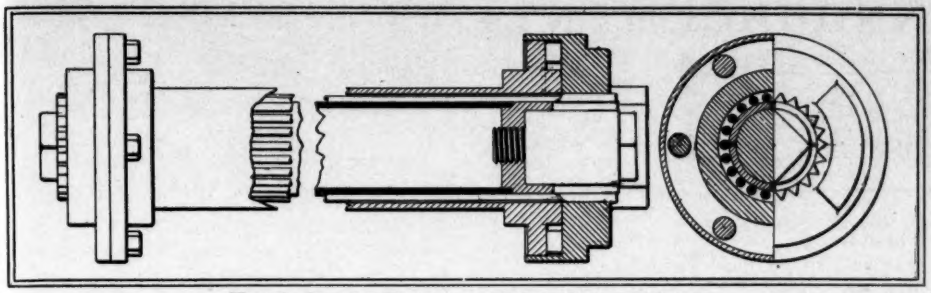
AMERICAN MOTOR CAR CO.

One more name has been added to the already rapidly growing list of motor car manufacturers in Indiana. The American Motor Car Co., Indianapolis, is the official title of the new concern and the car built by it is a full line touring car possessing among many other of its features a vertical four-cylinder 35-40 horsepower motor, cone clutch, sliding gear transmission, shaft drive and a five-passenger body built to conform with 1906 design. The American is the trade name of the machine.

Pressed cold rolled steel with a 3-16-inch wall forms the main frame pieces and is assisted in carrying the motor by a pair of subframe pieces. The gear box is supported on the subframe parts also. In riveting the frame pieces care has been shown in not having two rivet holes in the same vertical line, the object being the eliminating of the liability of breakage. One piece of drop forged steel formed with an I-cross section and slightly dropped in the center to protect the bottom of the crankcase and differential housing constitutes the front axle. The seats on which the springs rest are made a part of the axle, which is done in the forging process. Requiring the casing to support the entire load of the car is prominent in the rear axle design. This is accomplished on general floating axle lines —by having the sleeves containing the driveshafts of the axle extend through the hubs of the wheels and also having them fitted with the bearings for the wheels. The lower half of the differential housing is of steel and the upper half and inspection lid is of cast aluminum. Into each side of this housing is brazed the steel axle sleeves. On the latter are the hinged spring seatings. A truss rod fastened inside the bearings and passing under the differential housing lends material aid in giving additional strength to the axle. The supports for the expanding members of the brakes are also brazed to the axle sleeve. To one side of the pinion shaft housing and formed a part of the differential case is a socket into which is fitted a torsion tube for taking the driving and braking torque, thus relieving the springs of this load and strain. Steel springs fashioned on accepted semi-elliptic lines carry the body at all four corners. Each spring is oil-tempered and finished all

over. The front pair is 32 inches long, the rear pair 48 and the width of both is 1¾ inches. Second growth of hickory is used in the road wheels, which have a 34-inch diameter, are supplied with 4-inch Continental tires in front and rear and revolve on ball bearings, the inside race of balls being ¾-inch in diameter and the outer race ⅝-inch. The front axle clearance, which is the least in the car, is 9¾ inches; the wheel base measures 111 inches and the tread is standard. Stretching beneath the motor and gear box and protecting all of the mechanisms from mud is a metal apron suitably attached to the side pieces of the frame pieces by rivets.

Four vertical cylinders operating on the four-cycle principle, and cast in pairs, are found in the motor. Each has a measurement of 4 9-16-inch bore and 5-inch stroke and the rating of 35-40 is based on crankshaft speed ranging between 150 and 1,450 revolutions per minute. All motor parts are assembled on the upper part of the crankcase, which is an aluminum casting with integral arms for taking the motor weight on the subframe pieces. The lower half of the case, an oil pan, can be detached without disturbing other motor parts. The cylinders, made of fine grain cast iron, have the waterjackets in the form of integral casting. After machining the insides of the cylinders these castings are set aside for an aging process, which process the maker asserts equalizes all internal strains in the metal and permits it to assume its permanent form. After this period is completed the insides are ground to size. The crankshaft, a nickel steel forging, revolves on three long bearings, each in the form of a split box machined and lined with bronze. All three bearings are long, that at the rear measuring 4½ inches in length and with a diameter of 1¾ inches. This shaft, like the cylinder casting, is subjected to an aging process, previous to which it is roughly machined, but after which it is finally machined and ground to 1-1,000 of size. The connecting rods are dropped steel forgings, with the lower half of the crank pin end secured by four bolts. The pistons, piston rings and wrist pins are ground to size. The mounting of the cylinders on the crankcase is such that the axes of the cylinders are tangential to the crankshaft, the claimed advantage for which is that the side thrust on the pistons is diminished because of the lesser angularity of the connecting rods. Both sets of valves, intakes and exhausts are located side by side in the bottom of ports on the motor left and are operated from a single camshaft driven through enclosed gears on the front end of the crankcase. The gears for the camshaft, as well as the other motor-driving gears, are housed within an aluminum case and are featured by being of the spur type and having the teeth cut spirally, which is claimed to reduce the noise considerably. When not in use the starting crank is carried hori-



HOBB'S SPRING DEVICE FOR PROPELLER SHAFTS

zontally on the front frame cross piece. In order to relieve the valve push rods from thrust occasioned by the cams horizontal levers pivoted to the side of the crankcase work between the cams and bottom of the push rods. A float feed carbureter designed on the auxiliary air supply principle supplies mixture to the four cylinders. Not the least interesting part in connection with it is the use of a balanced piston throttle, permitting of adjustment to the slightest degree in response to variations in cylinder speed. The spark plugs are carried over the intake valves and receive their current through the usual style of four-unit coil, imported from France, commutator and switch from a three-cell storage battery with a pressure of 6 volts and a 60 ampere-hour capacity. The battery is carried on the right running board between the seats. In lubricating the motor a six-feed Lunkenheimer oiler is called into service. It is placed on the dash and driven from the vertical shaft carrying the commutator through shaft and bevel gears. From it oil is supplied to each of the four cylinders and into the two compartments into which the crankcase is divided. Each feed is adjustable and through glass tubes on the top of the oiler the flow to each part can be watched. On the three crankshaft bearings are ring oilers which hang over the shaft and drop into an oil reservoir beneath from which each link leaves laden with oil which is deposited on the shaft when passing over the top of it. The cooling radiator is constructed of ⅛-inch copper-crimped spiral fin tubes which are placed vertically side by side within rectangular framework, which combines in its make-up a water tank. The capacity of all is 3½ gallons. The fan, supported on the forward pair of cylinders, is driven by a ¾-inch flat belt. By loosening one screw and swinging the fan support on its journal the adjustment of the belt can be readily changed. The water pump, gear-driven, is fastened to the front of the crankcase and takes its drive through a composite fiber gear engaging with a pinion which also drives the camshaft. A 17-gallon gasoline tank, of oval cross section and made from copper, is situated under the front seat and supported directly from the frame pieces.

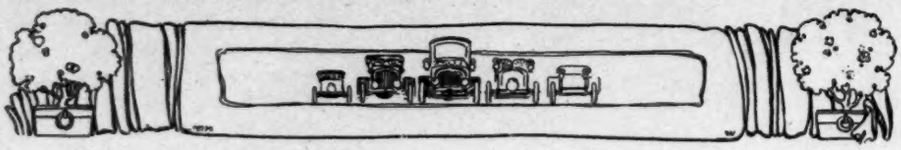
All three transmitting elements, clutch, gearbox set and driveshaft are standard. In the clutch, of the cone type, contact is lessened in starting by the introduction of little springs beneath the leather facing. Positive drive when engaged is aimed at by wide contacting surfaces on both the male and female surfaces. The male part carried on the floating scheme is designed to always act in alignment and so obviate binding when driving. The gear set affording three forward speeds and the usual reverse works on the straight sliding pinion design and is made with all parts heavy and bearings of good dimensions. The gears are hardened by a special process, whereby the maker asserts the faces are as hard as it is possible to temper steel, yet the interior of the metal in them is said to be soft, affording strength and overcoming the liability of stripping. The gearbox is an aluminum housing with a top inspection cap which is held in place by a slotted swinging yoke and set screw with wheel handle. Drive from this gear set to the axle is through a propeller-shaft which has a pair of universal couplings. The differential has all gears cut with four pitch and case hardened. The floating driveshafts within the axle have a squared fit in the differential bevels and at their outer end receive claw clutches which engage with the outer edge of the wheel hubs for transmitting the drive.

SPRING SHAFT DRIVE

Few makers of automobiles in this country are following the practice of inserting a spring device in the propeller-shaft connecting the gearbox and the rear axle. Inserting a spring in this shaft means that any quick jerk occasioned by throwing the clutch in too quick is not transferred to the road wheels, but is absorbed by the spring. Dr. Hobbs, Jackson boulevard, Chicago, Ill., one of the many physicians who make it a point of studying car defects, has patented a novel spring scheme. As illustrated, in the side and cross section, this device can be inserted by cutting the propeller shaft in two and coupling the two parts by the spring device, it being secured in place by bolts and flanges. The Hobbs device is a steel tube about 1 or 2 feet in length and of any diameter from 1 inch up. One end of the tube has a flange for attaching to one part of the propeller shaft. Within this tube is a series of twenty-two steel wires, with ends of triangular shape and embedded into the flange of the tube. These steel wires are equal in length to that of the tube and have their other ends embedded in a disk piece which is in turn fastened through flanges to the other part of the propeller-shaft. From this it is noted that one end of the wires is attached direct to one part of the propeller-shaft, and the other end to the other part of the propeller-shaft, so that in starting the springs are subjected to a twist, the same as if you take a dozen lead pencils holding one end in your left hand and the other in your right, and twist in opposite directions. To prevent too great a twist on the wires a lock clutch is fitted so that after a twist of 45 or 50 degrees is given, the lock clutch anchors the two parts of the propeller-shaft together so that the drive is as positive as if the wires were not used. When driving the car the springs are always twisted, but play no part after the lock clutch comes into use. When standing and the clutch is thrown out the tension of the wires is sufficient to slightly turn the gearshaft and so bring the wires to a straight position.

THE AMERICAN CAR—MADE IN INDIANAPOLIS

BRIEF BUSINESS ANNOUNCEMENTS



Roslyn, L. I.—A large automobile garage is being built here.

Janesville, Wis.—A new company is being formed here to engage in the manufacture of gasoline engines.

Baltimore—The Automobile Outing Co., agent for the Columbia, has opened a new garage at Madison and North avenues.

Lockport, N. Y.—The American District Co. has gone into the manufacture of automobile trucks.

Los Angeles, Cal.—William Ruess has joined the White forces since the first of the year.

Philadelphia—Eugene Franch has severed his connection with the Reo company and will be succeeded by W. C. Olds.

Cleveland, O.—Price Bros. Carriage Co., the local agent for the Baker electrics, is now located in its new garage at 406 Huron street.

Kansas City, Mo.—The Ford Motor Co. is preparing to open a branch house in this city. Charles C. Meade is to be the manager of the house.

Chillicothe, O.—Orville Houser has opened a garage in this city. He is organizing a company to manufacture an automobile of which he is the designer.

Lockport, N. Y.—C. D. Van Schaick has secured the agency for the Covert Motor Vehicle Co. and will be located at 72-74 Beaver street with a branch office in Mount Vernon, at 185 South Eleventh avenue.

New York—The agency for the Pierce-Racine cars for New York city and the state of New Jersey has been taken by Gantert & Paul, of the Lenox Automobile Co., 60-62 West One Hundred and Sixteenth street.

New York—A. E. M. De Montsaulein, of Paris, has filed plans by Architects Cary & See for a three-story garage to be built at 211 West Eighty-seventh street at a cost of $11,000. He will build a similar garage at 214 West Eighty-seventh street.

Pittsburg—H. L. Brown, who has taken over the electric business of the Standard Automobile Co., has closed for the agency of the Pope-Toledo. He expects to move into the garage now occupied by the Hiland Automobile Co. as soon as its new building on Center avenue is completed.

Baltimore—A structure is now in course of construction at the corner of Mount Royal and Maryland avenues, for the Motor Car Co. The garage is to be a two-story building. The first floor will be devoted to garage purposes and on the second will be clubrooms for various automobile associations. The members of the Motor Car Co. are Howard W. Gill and A. Stanley Zell, both of Baltimore.

Evansville, Ind.—The Windsor Automobile Co. is building a new factory.

Indianapolis.—J. S. Conwell has been appointed general manager of the factory of the Marion Motor Car Co.

Cincinnati—The Smith-Eggers Co. has started a repair business in connection with its sales department.

Philadelphia—H. Allen Dailey has opened an agency at 215 North Broad street and will handle the Fiat exclusively.

Cincinnati—Work has been started on the two-story garage of the Acme Motor Car Co. The cost of the building is estimated at $15,000.

Providence, R. I.—The agency for the Stoddard-Dayton cars has been taken by Edgar L. Nock, of 184 Massachusetts avenue.

Philadelphia—E. C. Meyers has secured the agency for the Cushman and Lackawanna gasoline engines and has established headquarters at 1134 Vine street.

Houston, Tex.—The carriage and harness firm of Mosehart & Kellar has purchased the lot adjoining its place of business on Franklin avenue and will erect an automobile garage.

Brooklyn, N. Y.—The Homan & Schultz Co. has opened a branch for the sale of Ramblers and Nationals on Fulton street, near Bedford avenue. C. W. Smith is the manager.

New York—C. S. Jackson, former manager of Wanamaker's automobile department, is the active man in the Chadwick Motor Co., which is planning to settle in the former salesrooms of the Decauville company on Thirty-eighth street.

Philadelphia—The Brazier Automobile Works has announced its removal from 1811 Fitzwater street to the company's West Philadelphia plant at Thirty-eighth and Market streets, until more suitable quarters are secured in the central part of the city.

Trenton, N. J.—A unique industry is to be established here, under the name of the Philadelphia Portable Stores Co. The charter recently issued to the company enables it to conduct a general store, but it is said that the real object is to conduct an automobile peddling service. Huge cars are to be fitted up as stores on wheels. With Camden as a headquarters, these

will be run through the state, selling principally to people in the country districts.

Montclair, N. J.—An automobile stage line is to be operated here in the near future.

Stamford, Conn.—Frank A. Sneackner is no longer connected with the Stamford Motor Co.

Lenover, Pa.—A charter has been granted to the Chalfant Motor Car Co., with a capital stock of $50,000.

Bay City, Mich.—Among the new industries to be established here in the near future is an automobile factory.

Springfield, Mass.—The Dudley Auto School and Garage Co., of Boston, has opened a branch office at 307 Main street.

Providence, R. I.—The Flint Motor Car Co., the local agent for the Packard cars, has opened a repair shop for Packard cars exclusively.

Boston—The Morrison-Tyler Co. has added the Marion to its line for the coming season. Besides the Marion agency for New England, the company has the same territory for the Maxwell and Rainier.

Boston—Owing to the growth of his business, George J. Durham, the local representative of the Royal Tourist, has been obliged to enlarge his quarters, and has taken the adjoining store.

New York—The Decauville Automobile Co. has moved to its new home at Broadway and Fifty-sixth street, where there will be salesrooms for the Decauville, English Daimler, C. G. V., and Franklin.

Philadelphia—Stady, Reeves & Co. have invited estimates for the construction of the electric truck shop which is to be built at Seventeenth and Buttonwood streets for the Baldwin Locomotive Co. It will be a five-story structure, built of brick, steel and concrete.

Worcester, Mass.—The L. W. Pond Machine Co. has announced it will retire from the manufacture of planers, and engage in the automobile business, maintaining in addition a large repair shop. The repair shop will be opened at once. The company will commence the manufacture of automobiles next year.

Huntington, N. Y.—The Huntington Automobile Co. has been incorporated under the laws of this state. The new corporation will take over the business of the Automobile Machine Co., of which J. J. McMulkin is chief engineer. It will have its quarters in the Underhill building, on Wall street, where a large amount of machinery has been installed.

Des Moines, Ia.—W. H. Kitto, of Middletown, Conn., representing the Motor and Components Mfg. Co., is in town endeavoring to secure a stock subscription bonus of $25,000 for the location here of a factor with a capital of about $50,000 to manufacture automobiles and do automobile repairing. A favorable report has been made on the proposition and a committee has been formed to secure subscriptions.

MOTORING LITERATURE

A little advance catalogue of the 1906 Stoddard-Dayton touring car is being circulated by the Dayton Motor Car Co., Dayton, O. Only the features of the car are included and a few illustrations used.

Nineteen letters from owners of Maxwell automobiles are published by A. F. Chase & Co., Minneapolis, Minn., in a book entitled "The Opinion of the Public." The letters all come from western owners of these machines.

The Samson leather tire, with all of the different sizes and prices, is described in a little book published by its American agents, located at 12 West Thirty-third street, New York, and under the management of A. E. Gallien.

The Spicer dust-proof universal joints are fully set forth in a catalogue in which are shown the construction of each, their outward appearance, the many styles in which they are made and the sizes and prices of the different styles.

The Snapit lock switch, manufactured by F. A. Goebel, Marietta, O., has devoted to its merits a twelve-page booklet, in which a few of its advantages are given. The construction of the device is not illustrated. An external view is given.

The Standard Roller Bearing Co., Philadelphia, Pa., has what can be called a real catalogue dealing with its roller bearings. Sixty pages are needed to show every design of roller and ball bearings used, each is well illustrated and the many sizes in which each is made and the prices of each given.

"The Rights of the Automobile," by Martin Isaac, and published in Germany by Verlag von Franz Vahlen, of Berlin, is a treatise on the road privileges of automobilists in the fatherland. Its 250 pages are filled with road incidents, the damage suits that resulted therefrom and various road laws and customs.

E. B. Meyrowitz, the prominent Paris optician, who has catered so much to the automobilists by the numerous designs of goggles brought out by him, and who has American headquarters in New York, St. Paul and Minneapolis, has for mailing purposes a catalogue showing each goggle style manufactured by him. The sizes and prices of each style are given.

Descriptions of the 30 and 45-horsepower machines are contained in the latest production in the trade literature line issued by the Peerless Motor Car Co., Cleveland, O. In plain, simple language the many facts are narrated. These are supplemented with illustrations of the machines, motor, motor dissembled, brakes, radiator, interior of gearcase, rear axle, rear spring suspension and controlling mechanism which give the reader a quick and complete comprehension of the machines.

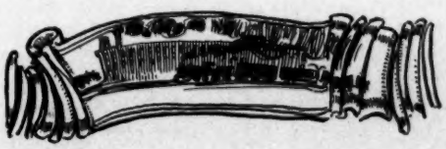
Seven styles of radiators for all styles of automobiles, one condenser, fifteen bonnet designs, fourteen styles of fenders and several forging designs used in attaching the fenders are shown in the latest catalogue published by the Hayes Mfg. Co., Detroit, Mich. The materials used, the sizes in which they are made and the trade names of each are given. Prices are not quoted.

White Bulletin No. 11, published by the White Sewing Machine Co., Cleveland, in the interests of White steamers, is specially attractive in that its leading article is a long account of a tour taken by A. A. Post and others through the mountains of Maine and into the wilds of Quebec, in White cars. The interesting incidents of the long trip, most of which was made over virgin roads, are well told and excellently illustrated.

Mors automobiles imported by an American branch house at 41 West Fifty-fifth street, New York city, are the subject of a small catalogue in which is shown side and bottom views of the motor, three-quarter chassis view and side view of a complete car. In the reading matter is a good description of the chassis, containing complete details on all parts of it as well as on the other points of the machine.

C. G. V. cars, sold in America by the Decauville Automobile Co., Broadway and Fifty-sixth street, New York city, for the coming season are well illustrated in a twenty-page booklet which shows four styles of cars, gives a few points about each and contains several pages of names of owners of these machines. The most useful illustrations are those of the motor, gear set and clutch, the last named in particular being noteworthy because it is shown cut in half, exposing every important part in its makeup.

"Two Americans in a Motor Car, Touring in Europe," is the title of an interesting 100-page book from the press of the Brooklyn Daily Eagle, Brooklyn, N. Y. The book contains a list of sixty desirable motor tours, together with a table of distances, stopping places and repair stations. The ten chapters of reading matter cover touring in Wales, England, in and around Paris, through Brussels and Waterloo, all through Holland, trips from London, continental trips, touring in Scotland and the voyage home. Over two dozen illustrations of interesting places passed through are given. The tours are not continuations of places passed through and distances covered but are replete with incidents occurring along the way, interesting inscriptions in cemeteries pasesd through, out of the way historic points and a score of other points that never fail to attract the amateur tourist seeking foreign adventures.



LATE INCORPORATIONS

Albany, N. Y.—The Hol-Tan Co., of Glen Cove, has been incorporated with a capital stock of $100,000 and will engage in the manufacture of automobiles.

Newark, N. J.—The Newark Motor Car Co. has been incorporated to manufacture automobiles, locomobiles and other motor vehicles. The capital stock of the company is $100,000.

Ashtabula, O.—The Palmer Automobile Co. has been incorporated with a capital stock of $50,000.

Portland, Me.—The Portland Garage Co. has been incorporated with a capital stock of $10,000 and will deal in automobiles of all kinds.

Monticello, N. Y.—The American-European Touring Co. has been incorporated with a capital stock of $150,000.

New York—The Michelin Products Selling Co. has been incorporated with a capital stock of $100,000 and will deal in motor cars and appliances.

Syracuse, N. Y.—The Cronin Automobile Co. has been incorporated with a capital stock of $500 and will deal in automobiles.

New York—The Matheson Co. has been incorporated with a capital stock of $100,000 to manufacture automobiles.

Brooklyn—The Plaza Automobile Co. has been incorporated with a capital stock of $10,000 and will manufacture motors, engines, wagons, boats, etc.

Corning, N. Y.—The Corning Automobile Co. has been incorporated with a capital stock of $5,000 and will manufacture automobiles.

New York—The Universal Motor Car Co. has been incorporated with a capital stock of $500,000.

Augusta, Me.—The Consolidated Automobile Co. has been incorporated with a capital stock of $100,000 and will deal in automobiles.

Brooklyn—Hugo Tollner & Sons have been incorporated with a capital stock of $25,000, and will deal in cars, carriages and vehicles of all sorts.

Philadelphia—Application has been made for the incorporation of the George W. Nock Co., the object of which is to engage in the manufacture and sale of hardware and automobile and cycle sundries and supplies.

Lockport, N. Y.—The American Motor Truck Co. has been incorporated for the purpose of manufacturing pleasure vehicles and boats. Capital, $10,000.

New York—The Alpy Transfer Co. has been incorporated with a capital stock of $1,000 and will operate an automobile station.

Montgomery, Ala.—The Van Dusen Motor Car Co., of Jefferson county, has been incorporated with a capital stock of $25,000.

Jersey City, N. J.—The Automobile Wheel & Rim Co., of Jersey City, has been incorporated with a capital stock of $200, and will deal in goods, wares, merchandise and automobile appliances.

Guthrie, Okla.—The New Motor Roadway Co., of Oklahoma and St. Louis, has been incorporated with a capital stock of $150,000.

Brooklyn—The Transriver Auto Co. has been incorporated to deal in automobiles with a capital stock of $15,000.

Oshkosh, Wis.—The Grueger Automobile Co. has been incorporated with a capital stock of $10,000.

Albany, N. Y.—The Breeze, Lawrence & Moulton Motor Car & Equipment Co., of Manhattan, has been incorporated with a capital stock of $100,000, and will manufacture and trade in automobiles, motor cars, etc.

Columbus, O.—The White Automobile Co. has been incorporated with a capital stock of $10,000.

New York—The Eagle Tire Repair Co. has been incorporated with a capital stock of $1,000, and will deal in automobile tires.

DEVELOPMENT OF STEERING APPARATUS

As steering mechanism plays such a vitally important part in the construction of motor vehicles, the following short article touching on the subject in a general way may be of interest, says a writer in Motor of England. A primitive type of steering gear, still occasionally to be seen on very old cars, is what is really but a development of the arrangement used on horse-drawn vehicles, namely, the front axle itself was pivoted, and the wheels mounted on the ends. It was abandoned, however, very early in the opening years of the automobile era as being very uncertain in action, and especially as speeds increased came the necessity for something better, safer and more sensitive. We have now the fixed front axle with the wheels themselves carried on independent pivoted axles. The mounting and operating of these axles is effected on a scientific plan based on geometry, which is, however, not difficult to understand from a diagram.

A rather interesting historical fact is that the general arrangement on which the steering of up-to-date motor cars is based was patented as far back as 1818 by Rudolph Ackermann, of London. It is known now as the Ackermann principle, but this is not strictly correct, as Ackermann did not elaborate it on geometrical lines. His idea was only to pivot the wheels separately. It did not steer perfectly, and the wheels were liable to skid. In 1878 Jeantaud greatly improved on the Ackermann principle. He determined that to get perfect steering the two wheels must be coupled in such a way that, however much they are turned, the axis of each, if protected, will meet on the center line of the rear axle. This point where the imaginary lines meet determines the center round which the car will rotate.

The diagram, Figure 1, shows how this movement is effected in practice. There is the outline plan of the frame, wheels and axles of a car. To get perfect steering the two wheels must be tangential each to its own track, and to attain this they must move together. Each wheel axle carries an arm all in one piece with it, and if the angles of these arms are correctly formed the plane of the wheels will take up the position to form tangents with the circles they move in. In brief, the whole arrangement ensures a perfectly

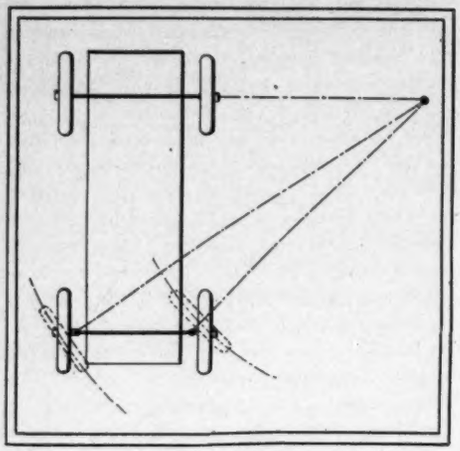


FIGURE 1

symmetrical disposition. It would appear that Jeantaud's idea was very closely anticipated by Amedee Bollee in 1873, as we read of him patenting a steering apparatus with independent jointed pivots. When we come to the mechanism for actuating the steering axles, there is some considerable variety of arrangements.

Some years ago the side lever or tiller steering principle had some considerable vogue. It had the advantage of being simple and direct in action. There were a few types of cars that had the tiller arranged centrally, but this arrangement has practically disappeared. It lacked convenience, and it was not possible to get a good leverage. The side lever was distinctly better in this respect, however, and a modified arrangement is still retained on a few standard patterns of touring vehicles. There is, however, one point distinctly in its favor, inasmuch as it gives a clear space in front of the driver. The wheel and inclined pillar is now adopted on the great majority of cars, experience having proved that it fulfills all important conditions. The motion of the inclined steering shaft can be transmitted in several ways to the steering rod. The three principal methods are the worm and quadrant, worm and nut, and rack and pinion. The first is the most generally adopted; it gives good positive control with a minimum of effort, and is irreversible, this latter feature meaning that motion cannot be transmitted back from the wheels to the steering shaft and wheel. The principle is shown diagramatically in figure 2. The steering shaft is supported in a tube, and ball bearings are employed to diminish the thrust friction. The steering wheel is keyed to the shaft, and at the other extremity is placed the coarse-pitched worm, which engages with a toothed quadrant. This, with its shaft, is mounted in a box, the exterior end of the shaft carrying the steering arm, which pushes or pulls the steering rod as the driver turns the wheel to right or left. Suitable joints, sometimes working on the ball and socket principle, and in some types knuckle joints, are provided to connect up the rod to the steering axle. This allows the mechanism to operate independent of the rise and fall of the front axle. It is usual also to provide a simple spring or buffer arrangement at the junction of the quadrant arm and the steering rod, to diminish any shock that might be communicated from the wheels to the quadrant arm.

The worm and nut mechanism is adopted to a considerable extent. One advantage it has over the worm and quadrant is that it is easily devised, so that any wear or back lash can be taken up by closing the two halves of the nut. This feature of back lash or lost motion is often very pronounced in some types of cars having the worm and quadrant, and it is difficult to remedy it. Looseness of the steering wheel obviously lessens the responsiveness of the steering wheels to the steering mechanism. The general principle of the arrangement is shown in figure 3, There is the usual inclined tubular steering pillar carrying the steering shaft, having a ball socket bearing at the top and a coarse pitched screw at the lower end. This worm or screw works in a nut provided with projecting trunnions. These trunnions engage with a fork made in one with a shaft, which in turn carries the steering arm moving the connecting rod. The action is as follows: When the steer-shaft is partly rotated by the hand wheel the screw causes the nut to move through the arc of a circle about its center; therefore, the shaft of the fork and the steering arm must move backwards or forwards. The steering shaft also moves slightly backwards or forwards in the tubular pillar, so that sufficient clearance has to be provided. The shaft therefore moves or pivots slightly on the ball and socket thrust bearing—not an ordinary type of ball bearing, as this would not allow of the pivoting action.

This type of gearing is perfectly irreversible, compact, and well protected from grit, etc. The rack and pinion device has the merit of simplicity and inexpensiveness in construction, but is not irreversible. Its action is so simple that scarcely any explanation is necessary. The steering shaft carries a small pinion at the end, which engages with a rack rod, one end of this being formed by a suitable coupling to the steering rod. This arrangement is not used to any extent. This principle is a very old one, being much used in the early days of cycling on the rear-steering tricycles, then in great vogue.

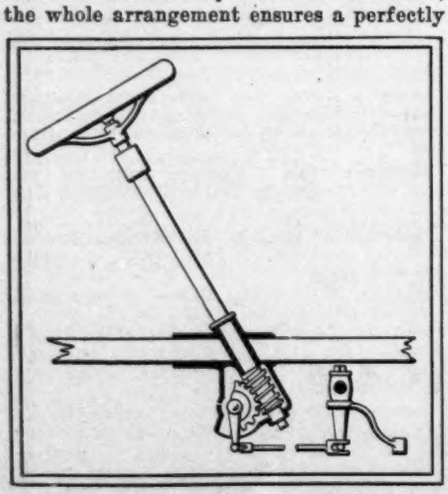


FIGURE 2

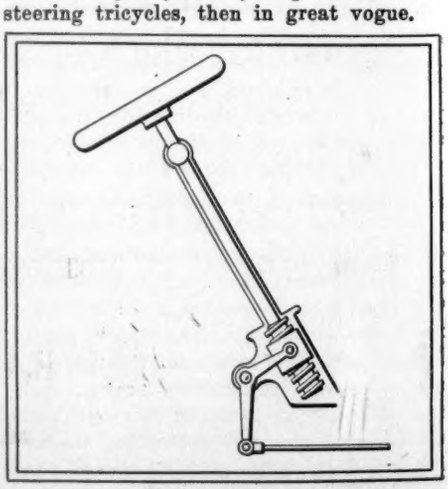


FIGURE 3